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# Avian flu awareness-raising campaign communication strategy

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## Abstract

Highly pathogenic avian influenza (HPAI) remains a persistent and recurring threat to poultry production in the EU, requiring not only technical control measures but sustained behavioural compliance with farm-level biosecurity. EFSA commissioned Verian to develop a pan-European, multiannual communication strategy aimed at increasing the general awareness of the risks and suitable measures to foster the uptake and long-term maintenance of priority biosecurity behaviours across the poultry sector. The strategy was informed by a target audience segmentation analysis identifying distinct groups with different risk perceptions, behavioural drivers, and communication needs. To support evidence-based campaign design, a situational analysis reviewed key transmission pathways and assessed the feasibility and behavioural determinants of preventative and remedial measures. In parallel, a stakeholder mapping exercise identified trusted intermediaries and multipliers capable of increasing message credibility and reach across target groups, including veterinarians, producer organisations, animal-health authorities, supply-chain actors and peer networks. Based on these findings, a strategy is proposed to prioritise a set of flagship biosecurity measures that are both effective and feasible, such as controlling farm access, hygiene at entry, separation of clean and dirty areas, separation of birds, and early reporting of suspicious signs. The campaign proposal is structured as a three-year communication pathway: Year 1 establishes a shared understanding of transmission logic and strengthens trust in recommended practices; Year 2 supports implementation through practical micro-learning tools and intermediary-led reinforcement; Year 3 focuses on preventing behavioural relapse through seasonal reminders and routine stabilisation. The strategy provides a coherent framework for EU-level communication, designed to be adapted and delivered through national systems while maintaining consistent messaging and proposes an evaluation plan to measure campaign success that allows drawing conclusions and the provision of recommendations.



**Keywords:** HPAI; biosecurity; awareness campaign; communication strategy; target audience segmentation; stakeholder mapping; behaviour change

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# Summary

EFSA commissioned Verian to develop a multiannual communication strategy for a pan-European awareness-raising campaign on highly pathogenic avian influenza (HPAI). The overarching objective of the strategy is to support a reduction in HPAI transmission across the EU by increasing the consistent and sustained uptake of key biosecurity measures. The strategy responds to the evidence that while awareness of avian influenza is often relatively high in many parts of the poultry sector, adoption of effective biosecurity practices remains uneven and frequently undermined by behavioural, structural and economic barriers.

The strategy was developed using a multi-method approach combining desk research, behavioural evidence and communication strategy principles. A situational analysis was conducted to identify priority biosecurity measures for preventing introduction and spread of HPAI, and to examine the sociological and behavioural factors shaping compliance. In parallel, a stakeholder mapping exercise was carried out to identify and prioritise actors capable of acting as credible messengers and effective multipliers for different groups. The campaign design also builds on a target audience segmentation analysis, which identified six relevant audience segments. Five segments are directly targeted by the campaign: experienced 55+ family farmers, less experienced 25+ family farmers, semi-subsistence farmers, on-site operational workforce, and managers of large firms. The sixth segment, technical advisers, is engaged primarily as a key messenger and intermediary supporting uptake of campaign messages.

The situational analysis indicates that limited uptake of biosecurity measures appears driven by both a lack of information and, to a greater extent, by a combination of practical constraints and psychological barriers. These include resistance to disrupting established routines, low self-efficacy, doubts about the effectiveness of measures, and perceived or real constraints in time, labour and resources. For semi-subsistence and small-scale poultry keepers, these barriers are often compounded by lower risk perception and weaker connection to formal advisory systems. The analysis also underlined that reinforcement outside outbreak periods is critical, as compliance tends to decline when perceived urgency decreases. The strategy is grounded in the wider animal and public health context of HPAI and recognises the importance of sustained prevention given the continued circulation of viruses and the broader One Health implications.

The stakeholder mapping exercise identified a wide range of actors able to increase campaign reach and credibility. Stakeholders were assessed according to their relevance, their level of trust among each segment, and their capacity to influence behaviour. The mapping confirmed that effective communication must rely on existing trusted structures rather than solely on central institutional communication. Key messengers and multipliers include:

- private, public and para-veterinarians;
- farmers' associations and producer organisations;
- animal-health authorities and Chief Veterinary Officers;
- supply chain actors (e.g. feed suppliers, drivers, catching crews);
- labour unions and safety representatives;
- NGOs and community-based intermediaries;
- farm managers, supervisors and peer networks.

## Proposed campaign strategy

A central design principle of the campaign is to reduce complexity by focusing on a limited set of flagship measures. The evidence suggests that long and undifferentiated lists dilute attention, weaken prioritisation and reduce sustained adoption. The strategy therefore promotes a small number of practices that are evidence-based, feasible across most production systems, and suitable as clear behavioural anchors for communication. The core measures promoted across the campaign are: controlling access to the farm, changing and cleaning at entry, separating clean and dirty areas, separating birds (from wild birds, sick birds and other species), and reporting unusual signs immediately. Other measures remain available through technical guidance but are deliberately de-emphasised in campaign messaging to preserve clarity and continuity.

The campaign is structured as a layered awareness raising pathway, with distinct objectives for each year while maintaining consistent messages and priorities:

- **The first year** aims to translate general awareness into credible action by improving understanding of how avian influenza enters farms and by reinforcing the legitimacy of biosecurity measures. This phase targets all segments to establish a shared baseline of understanding, while placing special emphasis on semi-subsistence farmers through simple, highly visual materials and distribution through everyday contact points such as feed stores, local retailers and municipal services.
- **The second year** shifts from "why biosecurity matters" to "how to implement it", with the objective of translating the flagship measures into concrete routines applied correctly and consistently. This phase relies on trusted intermediaries, using micro-learning tools such as short training videos and demonstrations delivered by veterinarians and advisers, supported by practical prompts such as stickers and visual cues placed at key farm decision points. Digital communication is used to pre-seed content and reinforce familiarity ahead of in-person contact.
- **The third year** focuses on maintaining routines and preventing relapse, recognising that sustained compliance requires reinforcement across seasons and production cycles. Communication therefore concentrates on seasonal reminders, light-touch prompts, repeated digital reinforcement and brief follow-up interactions with trusted professionals to prevent erosion of practices over time.

Across all phases, the strategy applies behavioural levers designed to address the main barriers identified in the situational analysis. These include combining risk salience with efficacy framing to avoid fatalism, using trusted intermediaries to increase credibility and reduce resistance, leveraging social norms and peer influence, supporting self-efficacy through step-by-step guidance and micro-learning formats, and reinforcing behaviour outside outbreak periods through seasonal timing and repeated prompts. The strategy also emphasises that the campaign should function as an EU-level framework with national implementation. This means that EFSA is positioned as the central source of coherence and reference, supported by a campaign website hosting key materials and training content, while Member States and national competent authorities translate and adapt materials to local contexts and distribute them through established networks.

Essentially, the campaign strategy aims to provide a structured, evidence-informed framework for an EU-wide HPAI communication campaign that moves beyond one-off awareness raising. By combining a phased three-year pathway, a priority set of flagship behaviours, and delivery through trusted messengers and practical enablement tools, the

campaign aims to close the gap between knowledge and sustained action, supporting long-term adoption and institutionalisation of biosecurity practices across the EU poultry sector. The report also proposes an evaluation framework, including an intervention logic and KPIs, to measure the success of the campaign implementation that allows drawing conclusions and the provision of recommendations.

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# 1 Introduction

EFSA commissioned Verian to develop a communication strategy for a pan-European, multiannual campaign on avian influenza. A target audience (TA) segmentation analysis served as a foundational element in the development of the campaign strategy. The strategy aims to directly target five of the six identified audience segments, while the sixth segment is engaged as a key messenger for the campaign. The segmentation analysis also provided insights into the most effective messages, channels, and formats for reaching each segment.

As a first step in defining the strategy, a situational analysis was conducted. This involved analysing and categorising the key biosecurity measures required to prevent the spread of avian influenza, alongside the social, behavioural, and economic barriers and enablers influencing their uptake.

In addition, building on the TA segmentation analysis, a stakeholder mapping exercise was carried out. For each target audience, relevant stakeholders were identified and ranked according to both their potential interest in promoting biosecurity messages and the level of trust attributed to them by each segment. This process enabled the identification of an expanded group of potential messengers and multipliers for the campaign.

Based on the findings of this work, the campaign's key messages were identified and refined. In parallel, the overarching objectives and thematic framework of the campaign were defined in close collaboration with EFSA. The ultimate objectives of the campaign are to increase awareness of the risks associated with avian influenza and to emphasise the importance of biosecurity measures in preventing its spread, thereby contributing to a reduction in avian influenza transmission across the EU.

The campaign strategy is conceived as a multiannual plan, with clearly defined, year-specific objectives. Year 1 focuses on increasing general awareness and enhancing the perceived legitimacy of sources promoting biosecurity measures. Year 2 centres on encouraging the adoption of biosecurity practices, while Year 3 aims to support their structured and sustained institutionalisation. The campaign design process comprised several iterative steps carried out in close cooperation with EFSA and the European Commission's Directorate-General for Health and Food Safety (DG SANTE), which validated the overall design, key messages, and communication formats.

## 1.1 Background and terms of reference as provided by the requestor

This contract/grant was awarded by EFSA to: Verian Group Belgium S.A.

Contractor/Beneficiary: Verian Group Belgium S.A.

Contract/Grant title: Avian flu biosecurity communication strategy

Contract/Grant number: EC-COMM-2024-OP-0325-Lot 1

# 2 Methodology

The methodology for this project was designed to fulfil several essential objectives. Throughout the process, specific population groups within small and medium-sized farms, along with professionals related to poultry keeping, were prioritised for EU biosecurity communication. The investigation explored these groups' current understanding, perceptions, preferred information sources, and the messages they received regarding HPAI and biosecurity. Building on these findings, detailed audience personas were developed to reflect each group's communication needs and preferences.

Recommendations were prepared to identify effective communication content, formats, channels, and influencers tailored to each group. Furthermore, insights for EU-wide campaign planning were delivered, taking into account the necessity for a multiannual and adaptable approach. Secondary data, including EFSA's segmentation conclusions and targeted secondary research were leveraged throughout the project. These outcomes supported EFSA in implementing inclusive and impactful communication activities for poultry keepers and related professionals across the EU.

The methodology encompassed all stages of the communications cycle. Behavioural objectives were developed to clarify what the campaign aimed to change, grounded in a thorough assessment of the current situation. The strategy was crafted through mapping behavioural drivers and identifying levers to address these drivers, combined with careful target audience segmentation.

During the planning and design phase, a message structure was established, although its translation into creative executions was not undertaken as this would have required collaboration with a creative agency. In addition, high-level plans were made regarding the types of channels, touch points, formats, and assets to be deployed for communication activities. A plan for monitoring and evaluation was also provided, though the execution of this research fell outside the scope of the contract.

## 2.1 Situational analysis methodology

The situational analysis used available data to inform the communication campaign strategy by identifying core themes: social and psychological factors in preventing and addressing HPAI outbreaks, the practicality of measures for farmers and stakeholders, and obstacles to adopting these actions.

The two main sources it used were:

- The EFSA audience segmentation report
- Available academic literature on avian flu

## 2.2 Target audience personas description methodology

Before engaging in a detailed stakeholder mapping exercise, it is important to clearly introduce and define the campaign’s target audiences.

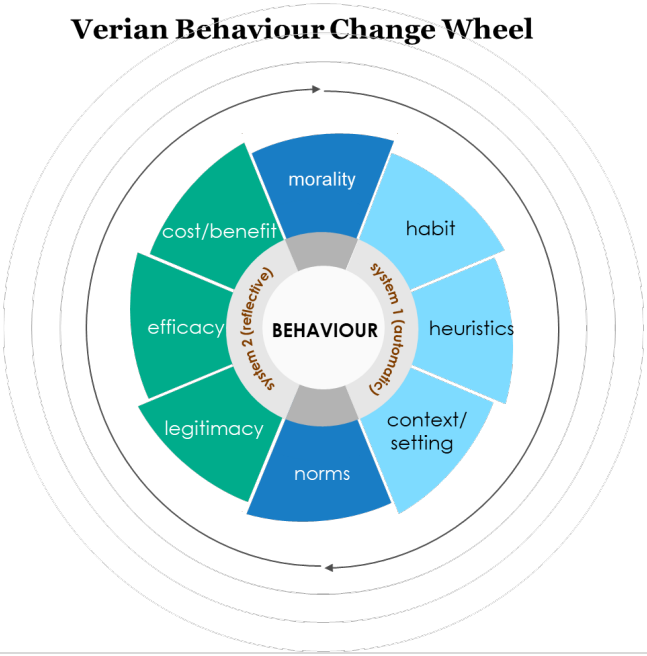
One of the building blocks of the campaign is represented by the profiles of the five audience segments1 identified in the audience segmentation analysis (Castillo et al., 2025). These five segments are: (1) Experienced 55+ Family Farmers, (2) Less Experienced 25+ Family Farmers, (3) Semi-subsistence Farmers, (4) On-site operational workforce, (5) Managers of large farms. The campaign targets all five of these segments.

For each of the five target audiences, a problem and needs analysis was performed, through which behavioural drivers of inaction were identified and grouped into 'Key barriers' and 'Capacity to act'. The analysis was performed relying on the tools illustrated in Table 1 of section 2.2.1. According to the different profiles' risk perceptions and drivers, combination of specific key messages, media assets, and activities can then be identified and presented.

### 2.2.1 Problem and needs analysis

The tools used in the study to identify and analysis the problem and needs the campaign was to tackle are described in the table below.

**Table 1. Problems and needs tools**

| Tool | Purpose |
|---|---|
| **Behavioural wheel (Verian)** | This tool is used to brainstorm and to structure the mapping of barriers and drivers of the behaviour which a campaign aims to address.<br>It is a tool against which we map information from desk research, interviews as well as brainstorming sessions to identify possible levers which the campaign can activate.<br>  |
| **Problem tree** | Mapping of the hierarchy of the key behavioural problem the campaign aims to tackle, the causes of the problem and its drivers. This mapping presents a visual and hierarchical overview of the linkages between the barriers and levers which are at the root of the behaviour which the campaign aims to change. The causes of the problems and its drivers are closely linked to the formulation of campaign objectives. |

[1] The audience segmentation report identifies 6 segments, but only 5 qualify as potential target audiences. The sixth , namely that of technical advisers, better fits the messenger and amplifier role.

| | |
|---|---|
| **Persona descriptions** | Presents the target audience segmentation by exemplifying each segment through a rich and relatable description. Each persona describes the needs, expectations and habits of a typical representative of a given segment. The purpose of these personas is to evoke empathy during the creative process. The personas are used when designing the campaign to test possible solutions through the lens of each hypothetical character. These personas are represented in figure 4. |

## 2.3 Stakeholder mapping methodology

The following section presents the methodology employed for stakeholder mapping, detailing the process by which key stakeholders for campaign dissemination were identified and profiled. This approach integrated insights from the audience segmentation report and systematically analysed stakeholder characteristics, ensuring the strategy was tailored to the needs and behaviours of each group.

### 2.3.1 Stakeholder mapping identification and profiling methodology

Section 2.2 described how the communication campaign's key target audiences were identified and illustrated, with particular attention paid to their levels of awareness and understanding of avian flu, their perceptions of associated risks, and, crucially, the behaviours the campaign seeks to influence or modify.

In the design of an effective communication campaign, however, identifying who the campaign speaks through is just as important as identifying who it speaks to. For this reason, it is essential to determine which actors should serve as credible messengers and multipliers, acting as channels through which campaign messages are conveyed to the various target audiences.

The following explains the mapping and profiling of the stakeholders who have a direct or indirect stake in the campaign and who are regarded as sufficiently trustworthy by the identified target audiences. This stakeholder profiling exercise is a critical building block of the campaign strategy. It enables a more nuanced understanding of which messages should be delivered, in what form, to which audiences, and at which stage of the campaign lifecycle. Ultimately, it supports the strategic alignment between message content, messenger credibility, and audience receptiveness, thereby increasing the overall effectiveness and impact of the communication campaign.

Stakeholders were identified based on data and information provided by the Castillo et al., (2026) and the situational analysis illustrated in Section 3.

The above data was also instrumental for the stakeholders' profiling, which was conducted taking into consideration the following categories:

- Stakeholder macro-group: the macro-category stakeholders belong to;
- Stakeholder group: the specific category stakeholders belong to and examples of different players within the given category;
- Relevant audience segments: the segments over which stakeholders might have an impact on (e.g., S1, S2 etc.);
- Description/role: a brief outline of stakeholders' key activities;

- Impact on target audience: the impact level stakeholders might exert on relevant audience segments and via which channels;
- Interest in supporting the campaign: the strength of stakeholders incentives to raise awareness on biosecurity measures and amplify take-up.

Results of this exercise are presented in Table 3.

### 2.3.2 Stakeholder ranking and prioritisation methodology

Stakeholders were ranked according to the stakeholder mapping matrix, a visual tool which categorises stakeholders based on their impact and interest:

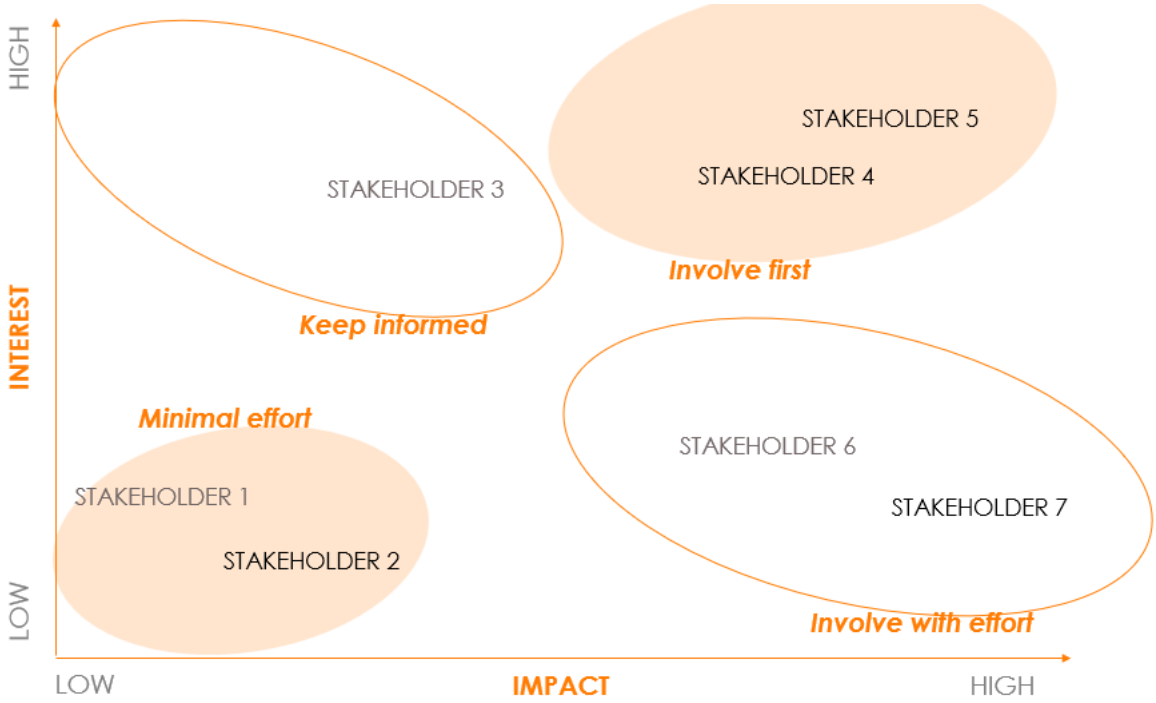



**Figure 1. Stakeholder mapping matrix**

- **Stakeholder impact** is based on level of trust expressed by the TA towards the stakeholder as depicted in Castillo et al., (2026) as well as the overall level of influence a stakeholder can exert on the TA. In other words, how much resonance would the stakeholder's activity have as a result of both their credibility and the frequency of interactions with relevant segments as messengers of avian flu biosecurity measures.

- **Stakeholder interest** is based on stakeholders' willingness to be active agents of change when it comes to raising awareness on biosecurity measures to prevent the spread of avian flu.

**Stakeholders impact and interest's high or low levels defined a prioritisation map, with 4 quadrants as follows:**

- High impact, High interest: Stakeholders to involve first;

- High impact, Low interest: Stakeholders to involve, but requires some effort;

- Low impact, High interest: Stakeholders to keep informed;
- Low impact, Low interest: Stakeholders to involve, with minimum effort (at least in the short-term).

A scale of 1 to 5 were adopted to evaluate the above-mentioned two variables for each stakeholder group as follows:

- 1 Low
- 2 Low to medium
- 3 Medium
- 4 Medium to high
- 5 High

## 2.4 Strategy methodology

The methodology applied to develop the strategy drew upon the detailed situational analysis, the segment description and the systematic understanding of attitudinal and behavioural changes that were required among target stakeholder groups. The campaign objectives were formulated based on an intervention logic informed by this analysis, ensuring that the identified needs and desired outcomes were aligned. Credible messengers for each audience segment had been identified through stakeholder mapping and segmentation, and messages were developed by examining behavioural barriers and levers, layering content to address varying awareness and motivation levels.

The selection of communication formats and actions was guided by a mapping of touch points throughout the audience journey, the use of multipliers to extend reach, and the resources available for implementation. This ensured an efficient allocation of effort and maximised engagement at critical stages. The methodology had also outlined a three-year timeline to support sustained campaign impact.

The research used several tools to structure the ideation and strategy development as well as testing and validation.

We structure these tools into:

1) Tools that structure the understanding of the problem and needs (illustrated in Table 1 of section 2.2.1)

2) Tools that structure the ideation stage (Table 2)

### 2.4.1 Ideation stage

The two main tools used at the ideation stage are presented in the table below.

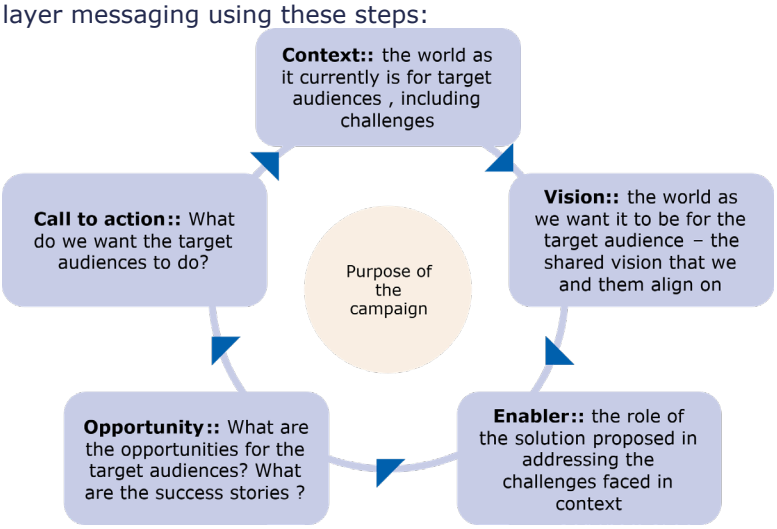
**Table 2 ideation tools**

| Tool | Purpose |
|---|---|
| **Journey mapping** | Journey mapping is a graphical presentation of the potential journeys of a given persona. The journey map helps to identify potential touchpoints along the |

| | |
|---|---|
| | journey of a person in the target audience, in this case the farm owner for example.<br>The journey also maps the typical states in which the target audience is at a given moment of the journey. This can be linked to the choices of formats or choices of messages/ messengers. |
| **Development of core narrative and associated messages** | A message is what we want the target audience to recall after having been exposed to the communication materials. The message is not always explicitly articulated in the materials but instead it is the meaning that the audience can relate to.<br>A message is different from the narrative or creative concepts in that:<br>Messages need to be combined into message streams, together forming an overarching narrative. A narrative allows you to effectively tell a comprehensive story to your audiences.<br>A creative concept is at a higher level than the messages. A creative concept is the red thread that goes through a communication campaign and which makes the different components of the campaign fit together. A creative concept is what the messages, the narrative, the channels, the visuals, etc. have to refer to in order to ensure coherence and effectiveness. |

| What do we need to say | What overall story are we telling | How will this be expressed | Will the content work as intended |
|---|---|---|---|
| Message | Narrative | Idea – creative concept | Execution (this stage is not covered by the present assignment) |

To develop the narrative and the associated messages we used a tool that helps layer messaging using these steps:




# 3 Situational analysis

The situational analysis serves to inform the campaign strategy by outlining core themes including social and psychological dimensions to consider regarding the prevention and combatting of HPAI outbreaks, the effectiveness and feasibility of preventative and remedial measures by farmers/other stakeholders, and barriers slowing down the adoption of those measures.

Recent developments underline the continued relevance of these issues: in 2025 alone, multiple Member States notified new HPAI outbreaks, leading the EC to update and expand protection and surveillance zones across several regions in the EU (European Commission, 2025). These recurring outbreaks, and the need for rapid and coordinated biosecurity responses, highlight both the epidemiological persistence of HPAI and the importance of sustained, effective implementation of prevention measures at farm level.

Sections 4.1 to 4.4 examine in turn the social context shaping behaviour, the measures available to farmers, the barriers to their uptake, and the potential levers a campaign can activate to support more consistent and durable biosecurity practices.

## 3.1 Social aspects to consider regarding HPAI

Several social dimensions of HPAI risk and biosecurity behaviour can be drawn from both social science and veterinary public health literature. Studies consistently show that biosecurity behaviour is shaped not only by technical knowledge, but also by risk perception, experience, trust, identity, and social context (see audience segmentation report).

High general awareness of avian influenza has been reported consistently among poultry farmers and professionals, particularly during outbreak periods. For example, Correia-Gomes et al. (2021) found that AI was "top of mind" among Scottish farmers during an outbreak, while Jewitt et al. (2023) observed similarly heightened awareness among UK backyard poultry keepers. However, several studies indicate that this awareness often coexists with limited or fragmented knowledge, especially regarding clinical signs, transmission routes and the effectiveness of specific biosecurity measures (Hosseini et al., 2025; McClaughlin et al., 2024).

Risk perception plays a central role in shaping behaviour. Delpont et al. (2021b), studying French duck farmers, demonstrated that lower adoption of biosecurity measures was associated with lower perceived risk, lower perceived efficacy and weaker beliefs that one's own farm could contribute to disease spread. Similarly, Correia-Gomes and Sparks (2020) found that small-scale farmers and backyard poultry keepers often underestimate the risks associated with wild birds or visitor movements, contributing to selective or absent implementation of recommended measures.

Perceived controllability is particularly influential. Hosseini et al. (2025) showed that farm managers who believed airborne transmission to be the dominant pathway for HPAI often felt that biosecurity could do little to prevent infection, leading to fatalistic attitudes. Crovato et al. (2024) reported comparable findings among Italian farmers, where heightened awareness of multiple transmission routes paradoxically led some participants to question the usefulness of further preventive effort.

Experience of outbreaks strongly reshapes social responses. Delpont et al. (2021a) and Hosseini et al. (2025) both found that direct outbreak experience increased risk perception, sense of responsibility and willingness to invest in biosecurity, including structural changes. These experiences were often described as emotionally and financially traumatic, reinforcing biosecurity as a personal rather than abstract concern.

Specific values and identity further mediate responses. Studies focusing on backyard and small-scale keepers consistently show that poultry are often viewed as pets or companions rather than production animals (Baldrey and Bacon, 2021; Jewitt et al., 2023). This framing

affects acceptance of measures such as indoor confinement or isolation, which may be perceived as unethical or harmful to animal welfare. In contrast, Delpont et al. (2021b) found that farmers with a strong sense of social responsibility and concern for reputation were more likely to implement high levels of biosecurity.

Trust and preferred communication channels have significant implications. Multiple studies confirm that veterinarians are the most trusted source of biosecurity advice (Amalraj et al., 2024b; Tilli et al., 2024; Jewitt et al., 2024). While farmers typically positively reply to emergency communication from national and EU level authorities (see audience segmentation report, section 2.1.8), Jewitt et al. (2023) and McClaughlin et al. (2024) highlight low trust in authorities among small-scale farmers and backyard poultry keepers, who rely more heavily on peer networks and social media, increasing both reach and risk of misinformation.

## 3.2 Prevention and effective remedial measures farms can take

The EFSA AHAW Panel's urgent statement on avian influenza (2017) provides a detailed technical foundation for understanding which preventive and remedial measures are effective in reducing the introduction and spread of HPAI in poultry holdings. In addition to the literature review conducted in the audience segmentation report, which focuses primarily on perceptions and behaviours, the EFSA Panel's statement identifies specific biosecurity interventions linked to known transmission pathways. Together, these sources allow for a comprehensive situational analysis that combines technical effectiveness with social feasibility.

### 3.2.1 Measures addressing introduction of HPAI via wild birds

EFSA (2017) identifies wild birds, particularly migratory waterfowl, as a primary source of HPAI introduction into poultry holdings. Effective preventive measures therefore focus on minimising direct and indirect contact between poultry and wild birds or their contaminated faeces.

Key measures include housing poultry indoors during high-risk periods, preventing access of wild birds to feed and water, and avoiding the use of open water sources that may be contaminated. They conclude that indoor housing is particularly effective for poultry systems that normally have outdoor access, such as free-range or backyard systems, because it removes the primary interface with wild birds during high-risk periods.

From a behavioural perspective, the audience segmentation report highlights that housing measures are among the most contested, particularly in free-range and backyard systems. Backyard keepers often perceive indoor confinement as incompatible with animal welfare and the purpose of keeping poultry (Jewitt et al., 2023), while free-range producers express concern over market implications and consumer expectations (Audience segmentation report, Section 2.1.5). These perceptions significantly affect compliance, even when awareness of risk is high.

### 3.2.2 Measures targeting human-mediated transmission

Human activity serves as a major vector for HPAI introduction and spread, particularly through contaminated footwear, clothing, equipment and vehicles. Preventive measures therefore focus on controlling and managing human movement onto and within poultry holdings (EFSA, 2017).

Key measures include restricting access to essential personnel only, maintaining visitor logs, implementing hygiene barriers at entry points, mandatory changing of clothing and footwear, and the use of effective disinfectants. In their statement, the EFSA AHAW Panel emphasises that these measures are most effective when applied consistently and systematically, rather than selectively.

The audience segmentation report shows that while such measures are widely recognised, their implementation is often inconsistent. Studies such as Millman et al. (2017) demonstrate that poultry workers may be aware of contamination risks but fail to apply measures consistently due to time pressure, workload or perceived inconvenience. This gap between knowledge and practice is particularly pronounced in smaller operations with limited staff.

### 3.2.3 Vehicle and equipment-related biosecurity

In its scientific opinion, EFSA (2017) highlights vehicles as a significant transmission route, particularly those used for feed delivery, animal transport, catching and waste removal. Effective measures include cleaning and disinfection of vehicles before entry and after exit, designation of clean and dirty zones, and minimisation of vehicle movement within farm premises.

Equipment shared between farms, including crates and tools, is also identified as a high-risk pathway. EFSA recommends dedicated equipment where possible, or thorough cleaning and disinfection between uses.

The audience segmentation report indicates that farmers often prioritise these measures when inspections or contractual obligations exist, but may relax them otherwise (audience segmentation report, Section 2.1.5). Millman et al. (2022) further show that workers may underestimate the contamination risks associated with certain equipment, leading to selective compliance.

### 3.2.4 Internal biosecurity and within-farm spread

Once HPAI is introduced, internal biosecurity measures are critical for limiting spread within a holding. These include physical separation between poultry houses, dedicated staff per unit where possible, controlled movement patterns, and rigorous cleaning and disinfection between production cycles. Effective internal biosecurity can also significantly reduce virus amplification and environmental contamination, thereby limiting onward spread to neighbouring holdings (ESFA 2017).

Despite this, the audience segmentation report and multiple empirical studies show that farmers tend to underestimate internal transmission risks (Laconi et al., 2023; Crovato et al., 2024). Internal measures are often perceived as secondary to external controls, particularly in single-house or small-scale systems.

### 3.2.5 Remedial measures following suspected or confirmed infection

EFSA (2017) outlines a set of remedial measures aimed at controlling outbreaks once HPAI is suspected or confirmed. These include immediate movement restrictions, culling of infected and at-risk birds, safe disposal of carcasses and contaminated materials, and thorough cleaning and disinfection of premises.

They also emphasise that rapid detection and response are critical for limiting spread, highlighting the importance of early reporting of clinical signs and mortality. However, the audience segmentation report shows that reporting behaviour may be influenced by fear of economic loss, stigma or distrust in authorities, particularly among small-scale keepers (Jewitt et al., 2023).

Post-outbreak recovery measures, including restocking protocols and structural improvements, are mentioned in EFSA (2017) but not described in detail. Social science evidence indicates that outbreaks can act as catalysts for long-term biosecurity improvements, although this is not systematically documented (Delpont et al., 2021a).

### 3.2.6 Overall ranking of biosecurity measures

Having discussed various biosecurity measures, it is important to see what measures score higher in terms of effectiveness and feasibility compared to others. The figure below provides an overview of the measures discussed, ranked by field experts across both dimensions.

According to EFSA (2017):

- Separating poultry species, especially ducks and geese from other poultry, is the most strongly recommended biosecurity measure, combining high feasibility, sustainability and effectiveness in preventing spread within production zones.
- Preventing direct contact with wild birds through indoor housing or the use of fences and nets is the most effective way to prevent virus entry, although feasibility depends on whether poultry have outdoor access. Indoor confinement is particularly recommended during high-risk periods, informed by wild bird surveillance, nearby outbreaks and seasonal conditions, as the virus persists longer in winter.
- Where confinement is not possible, providing feed and bedding under roofs or canvas covers reduces contamination from wild bird droppings.
- Cleaning and disinfection of poultry and waste transports, hygiene locks, and controlled clothing and footwear changes are effective but often difficult to sustain over time.

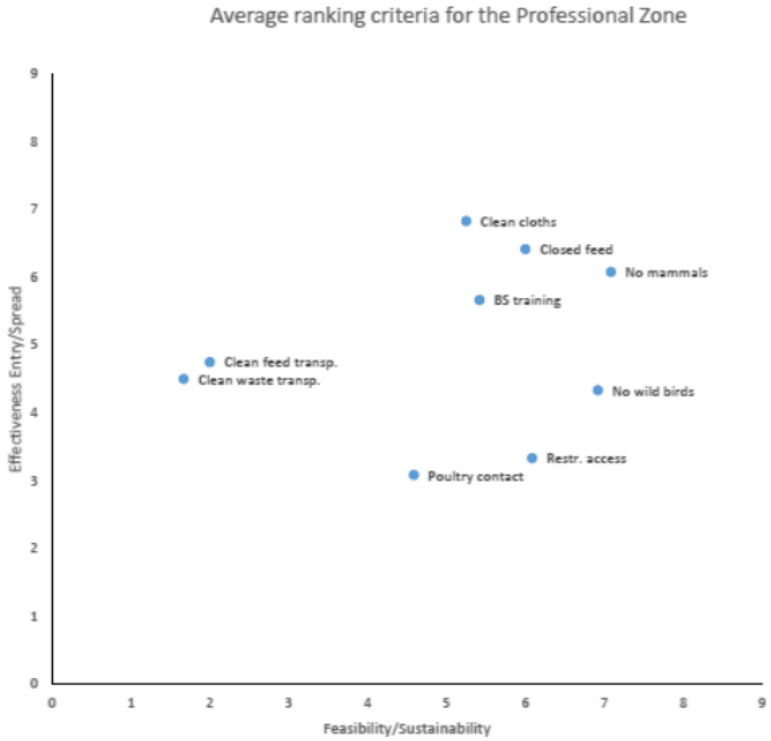



**Figure 2. Ranking of biosecurity measures in terms of effectiveness and feasibility (from EFSA AHAW Panel, 2017)**

## 3.3 Barriers slowing down adoption of measures

Knowing what measures are effective and feasible in preventing and controlling HPAI outbreaks is essential. Equally important is identifying the barriers to their adoption. Below we provide an overview of the most common barriers reported in the literature:

- **Economic constraints** are a dominant theme. Souillard et al. (2025) report that 17% of farmers cited cost as a reason for not implementing measures, particularly those requiring infrastructural changes. Amalraj et al. (2024b) similarly found that measures requiring reconstruction or permanent modification were often rejected due to financial burden.

- **Time constraints** are another widely reported barrier. Delpont et al. (2021b) found that measures such as changing boots or clothing were perceived as too time-consuming to apply routinely. Millman et al. (2017) reported that poultry catchers, despite satisfactory knowledge, frequently failed to implement biosecurity due to time pressure.

- **Psychological barriers** include low self-efficacy and resistance to change. Delpont et al. (2021b) identified a group of farmers with low conscientiousness and low belief in biosecurity effectiveness, who implemented measures only when forced. Crovato et al. (2024) describe "psychological costs" associated with disruption to routine, particularly during emergencies.

- **Structural constraints** are particularly relevant for small-scale and backyard keepers. Correia-Gomes et al. (2021) found that some Scottish farms could not comply with housing requirements due to insufficient indoor space. Delanglez et al. (2024) reported similar issues among Belgian private keepers.

- **Animal welfare** concerns further slow adoption. Jewitt et al. (2023) and Delanglez et al. (2024) show that indoor confinement is often resisted by backyard keepers who perceive it as harmful to birds' wellbeing.

## 3.4 Potential levers for the campaign to boost take up

As discussed in the previous sections, the (scientific) literature to date indicates that effective prevention of HPAI depends not only on the technical robustness of biosecurity measures, but also on whether these measures are perceived by stakeholders as relevant, feasible, proportionate and effective. A campaign seeking to improve uptake must therefore include, but also go beyond, general awareness-raising and focus on explaining how and under which conditions specific measures reduce risk, while acknowledging the practical constraints of different farming systems. Hence a campaign that aims to increase awareness (e.g. as an intermediate step) while providing practical guidance and addressing potential barriers is expected to have the greatest impact.

A central lever identified in the audience segmentation report's recommendations is the need to address persistent scepticism regarding the effectiveness of biosecurity. Several studies point to a perceived lack of convincing evidence linking biosecurity to tangible outcomes such as improved animal health, productivity or reduced antibiotic use (Herrmann et al., 2024). Campaign messaging can help address this by clearly linking specific measures to transmission pathways and outcomes, thereby strengthening perceived legitimacy and relevance.

The evidence base points to several complementary levers that can support improved uptake of biosecurity measures:

- **Trusted intermediaries are paramount.** Farmers are more likely to change practices when advice is delivered by trusted and credible actors, particularly veterinarians with poultry-specific expertise and established relationships (Amalraj et al., 2024b; Tilli et al., 2024; Jewitt et al., 2024). The audience segmentation report recommendations further highlight the potential role of integrators, supply-chain actors and animal health services to help translate guidance into context-fit procedures and tools.

- **Risk salience combined with efficacy framing is effective.** Evidence shows that direct or proximate outbreak experience increases motivation and compliance (Delpont et al., 2021a; Hosseini et al., 2025). However, the audience segmentation report recommendations stress that risk-based messaging should be paired with clear "what works" explanations and 'what's in it for me' framing, such as reduced downtime or improved flock health, to avoid fatalism and disengagement.

- **Social norms, peer comparison and community dynamics offer strong leverage.** Peer influence shapes biosecurity behaviour across segments. Online and offline farming communities can reinforce compliance through social accountability, benchmarking and shared norms (Jewitt et al., 2023). Tools such as biosecurity

checklists and benchmarking instruments, including Biocheck.UGent™, can motivate behaviour change by enabling comparison with relevant peers (Amalraj et al., 2024a). In addition, it is important to leverage existing local, organised, supply-chain and informal communities to disseminate practical knowledge and sustain behaviour over time.

- **Consider focusing on interventions that are both effective and feasible.** Evidence from EFSA (2017) shows that measures such as species separation, clean clothing and footwear protocols and closed feed systems score highly on both effectiveness and feasibility. Prioritising these measures in campaign messaging can maximise impact by promoting actions that significantly reduce transmission risk while remaining realistic to implement across different production systems, particularly where more disruptive measures face resistance. An example of how this prioritisation has been translated into concrete campaign messaging is offered by the #NoBirdFlu (2025) toolkit developed by EFSA and illustrated in Annex A.
- **Training, micro-learning and enablement assets remain cross-cutting levers.** Trained stakeholders are more likely to identify hazards and comply with measures (Tilli et al., 2024; Millman et al., 2017). While direct training delivery is beyond the scope of a communication campaign, the audience segmentation report highlights the value of promoting and signposting available training, as well as supporting knowledge and ability through low-friction tools such as role-specific one-pagers, visuals, checklists and brief how-to guidance aligned with farm workflows and seasonal risk peaks.
- **Reinforcement beyond outbreak periods is critical but underdeveloped.** The audience segmentation report notes a lack of evidence on how biosecurity behaviours are sustained outside outbreak contexts. Indicative evidence suggests that follow-ups, feedback using benchmarks and recognition of achievements may help reinforce behaviours over time. Campaigns can support this by encouraging use of shared benchmarks and directing audiences to consistent sources of guidance.

Taken together, the findings of the situational analysis also underline that improving uptake requires shifting from only one-off awareness messages towards a more structured communication approach that supports stakeholders along their behavioural journey; where (one-off) information campaigns can serve as a necessary intermediate step.

# 4 Target audiences

Below is an overview of the behavioural drivers of inaction identified for each of the five target audiences (TAs) following the methodology illustrated in section 2.2.

S1 - Experienced 55+ Family Farmers

**Key barriers**

- This group recognises the risk posed by avian influenza, but they do not believe that preventive measures can meaningfully reduce that risk.

- They often show dismissive attitudes toward authorities and toward recommended measures, because they see officials as distant and lacking practical understanding.
- Their long experience has created entrenched and sometimes incorrect habits, which makes behavioural change more difficult.
- They also struggle to understand the logic behind some biosecurity measures, which further contributes to resistance or noncompliance.

**Capacity to act**

- They can introduce new rules for workers, which can lead to new shared habits on the farm.
- They can also invest in structural biosecurity barriers, depending on their financial resources and ownership or decision-making power.

S2 - Less Experienced 25+ Family Farmers

**Key barriers**

- This segment has a high awareness of avian influenza risks and is open to learning and changing habits.
- They understand the benefits and potential consequences of adopting biosecurity measures.
- However, they feel uncertain on biosecurity measures take-up due to the low frequency of audits and the weak deterrent effect these audits currently have.
- They can also be pressured by older family members to maintain traditional practices, which limit their willingness or ability to change routines.

**Capacity to act**

- They can set new rules that influence farm routines and staff habits.
- They can also contribute to structural biosecurity investments, depending on financial resources and their role within the farm.

S3 – Semi-subsistence Farmers

**Key barriers**

- This group pays little attention to avian influenza communications and has limited understanding of the issue.
- Their risk perception is low, and they see little benefit, moral or financial, in adopting preventive measures.
- They have limited time and money to dedicate to biosecurity improvements.
- They tend to distrust authorities and doubt that official advice is useful or relevant.
- They also hold values related to animal welfare that sometimes conflict with recommended practices, creating further ambiguity about acting.

**Capacity to act**

- They can adopt new practices and habits if sufficiently motivated or supported.
- They may invest in structural measures, although this is highly dependent on their limited financial capacity.

S4 – On-site Operational Workforce

**Key barriers**

- This group has a moderate understanding of avian influenza risks and transmission.
- They may struggle with long-standing habits or with disruptions caused by high staff turnover.
- Motivation is often low due to principal–agent dynamics, because workers do not always feel personally responsible for biosecurity outcomes.
- Daily responsibilities create conflict between productivity and safety.
- Their ability to introduce new practices is limited because they usually have little decision-making authority.

**Capacity to act**

- They can adopt new habits themselves and help colleagues maintain compliance, provided that guidance and support are consistent.

S5 - Managers of Large Firms

**Key barriers**

- These managers generally have good knowledge and awareness of avian influenza risks.
- Their motivation to act is inconsistent because corporate structures require approvals that reduce their sense of control and slow down implementation.

**Capacity to act**

- They can introduce new rules that guide behaviour across teams.
- They can also authorise or advocate for investment in structural biosecurity improvements, although these decisions may depend on wider corporate processes.

Figure 3 visualises the results of the personas description for the five segments.

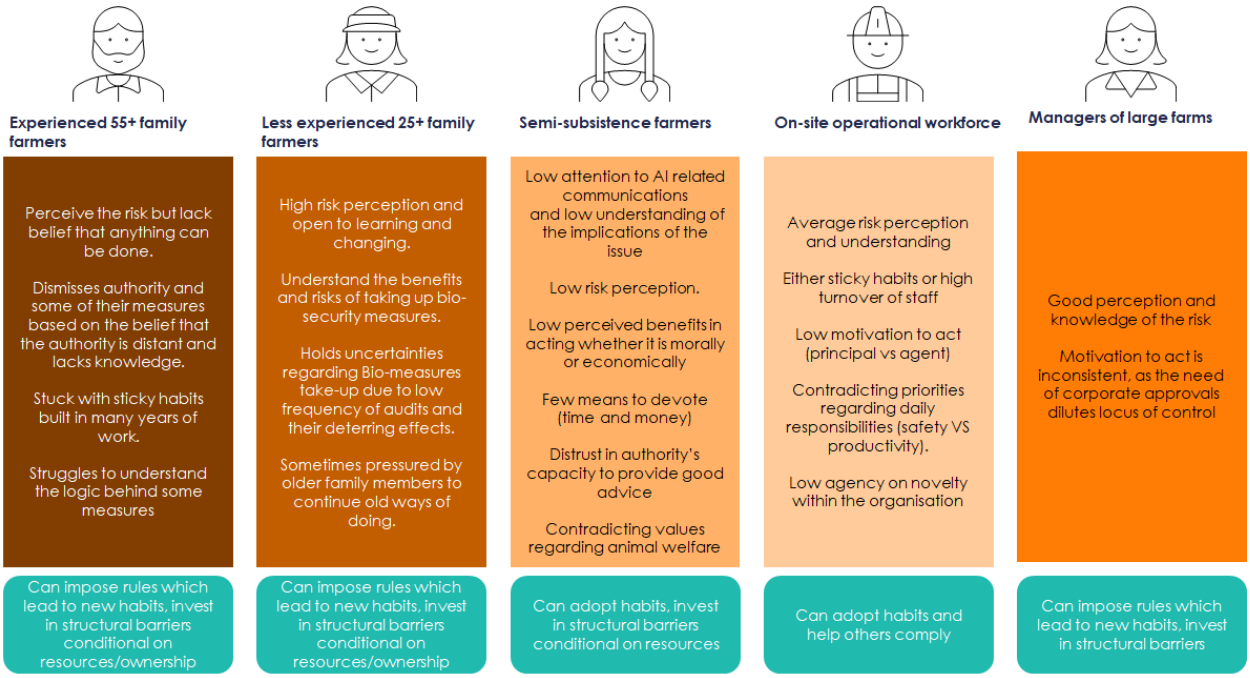



**Figure 2. Overview of segments and their drivers and capabilities**

For brevity, in the following paragraphs, the audiences' segments are referred to using this format:

- S1 – Experienced 55+ family farmers
- S2 – Less experienced 25+ family farmers
- S3 – Semi-subsistence farmers
- S4 – On-site operational workforce
- S5 – Managers of large firms

# 5 Stakeholder mapping

The purpose of the stakeholder mapping exercise is to maximise the reach, credibility, and overall impact of future EU-led avian flu awareness-raising communication campaigns. By identifying and analysing key stakeholders with the capacity to act as credible messengers and effective multipliers, this exercise supports the strategic dissemination of campaign messages and enhances their resonance across diverse target audiences.

The following section presents the stakeholders relevant to each audience segment identified following the methodology outlined in Section 2. It further clarifies which of these actors should be engaged as messengers or multipliers in support of the campaign's objectives.

## 5.1 Stakeholder identification and profiling

The stakeholder mapping – based on data provided by the preparatory work in support of risk communication on avian flu – includes the following groups and types, listed according to their key TAs, as in the overview below:

**Table 3. Stakeholder Engagement Overview – Avian Influenza Biosecurity Campaign**

| Stakeholders macro-group | Stakeholder group | Segments | Description / role | Impact on target audience | Interest in campaign |
|---|---|---|---|---|---|
| **Corporate industry** | **Integrators & poultry companies** (including cooperatives) | S1, S2, S3, (S5) | Set and enforce farm biosecurity via contracts and audits. Provide resources (training, supplies) and conduct periodic inspections to ensure compliance. | **Very high:** Medium/large farms usually follow the stringent measures these companies require, driving high biosecurity adoption on Segments 1–3. Their oversight also influences farm staff behaviour (Segment 5) by mandating standard operating procedures. | **Very high:** Outbreaks can severely harm business continuity and profits. These companies are highly motivated to enforce strict measures to avoid depopulation losses. |
| | **Corporate biosecurity leads** (Head-office managers) | S3, (S5) | Design company-wide biosecurity protocols and "playbooks." Allocate budget for infrastructure and coordinate training for farm managers and staff. | **High:** They shape daily rules for Segment 3 farm managers and staff. | **Very high:** Responsible for preventing outbreaks company-wide, they champion the campaign's measures internally. |
| | **On-site farm management** (Site managers, section leaders) | S3, S5 | Implement biosecurity protocols on the ground. Supervise farm workers, enforce visitor controls, and ensure cleaning/disinfection routines are followed daily. | **High:** They turn policy into action. When they prioritise biosecurity, farm staff (Segment 5) carry out procedures diligently, and their farm (Segments 1–3) remains far better protected. | **Moderate to high:** This varies by farm. Most managers are invested (family owners or professionals proud of flock health), but they need adequate time and resources to sustain full engagement. |
| | **Corporate support functions** (HR, Procurement, Logistics) | (S3, S5) | Provide indirect support for biosecurity: HR administers staff training, procurement funds equipment, logistics plans delivery routes to minimise risk. | **Low (direct):** They have minimal direct contact with farms, but their decisions enable or hinder front-line compliance. | **Low to moderate:** They prioritise biosecurity when leadership makes it a clear objective. Otherwise, they focus on routine duties and may view extra biosecurity tasks |

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| | | | | | as outside their scope. |
| **Technical** | **Private veterinarians** (Farm & company vets) | S1-S5 | Trusted advisors who visit farms to monitor bird health and give tailored biosecurity advice. They translate complex disease risks into practical steps and often lead on-farm training of workers. | **Very high:** Farmers across Segments 1–3 consider veterinarians their most credible information source and are far more likely to adopt measures recommended by their vet. | **Very high:** Preventing disease is central to their professional duty. Veterinarians are keen educators and actively encourage clients to implement recommended biosecurity measures. |
| | **Technical advisers** (Feed reps, biosecurity consultants, vet associations) | S1-S3, (S4) | Specialised experts who provide focused guidance and training beyond routine vet care. For example, feed company reps advise on feed storage hygiene, and consultants or extension officers conduct farm audits or workshops. | **High:** They reinforce veterinarians' advice and fill knowledge gaps. Their audits and demonstrations help medium and large farms (Segments 1–3) improve practices. They also can reach smallholders (Segment 4) through community meetings or advisory programs when vets are not available. In outbreaks, company advisers often communicate emergency measures quickly to farms, sometimes even faster than official channels. | **High:** These stakeholders are professionally committed to better biosecurity outcomes. |
| | **Public veterinary authorities** (National and regional competent authorities) | S1-S5 | Issue official rules (e.g. Housing orders, movement bans) and outbreak alerts. They enforce compliance through inspections and can impose penalties or culling for non-compliance. They also disseminate guidelines and informational materials to the farming community and general public during crises. | **High (in outbreaks):** During AI outbreaks, all segments must follow their directives (e.g. Mandatory confinement), which significantly reduces spread. In routine periods, their regulations set the baseline expectations, though voluntary uptake often requires reinforcement by vets or associations. Farmer trust in these authorities varies (commercial farmers comply out of duty, many backyard keepers are sceptical), which can temper day-to-day influence. | **Very high:** As the agencies mandated to contain AI, veterinary authorities fully back the campaign. |

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| | **Para-veterinarians** (Animal health technicians, extension officers) | S4, (S1-S3, S5) | Hands-on coaches who support vets and authorities by working directly with farmers and farm staff. They conduct practical training sessions, farm demonstrations, and provide one-on-one help. They often serve as a bridge to reach stakeholders who might not seek formal advice. | **Moderate:** They are crucial for Segment 4 (backyard and hobby keepers), who may trust these local advisors more than distant officials. On larger farms, their role is supportive – for instance, helping slaughterhouse staff understand and follow protocols during routine operations. | **High:** These professionals are passionate about community education and disease prevention. |
| | **Academic & research experts** (Universities, research institutes) | (S1-S5) | They inform the content that vets, authorities, and industry advisers rely on (e.g., proving the benefit of a measure or creating a risk assessment checklist). | **Indirect – high:** While farmers might not hear from researchers first-hand, the evidence and tools researchers provide (such as biosecurity scoring systems) significantly influence on-farm behaviour by way of vets and advisors. | **Very high:** Their interest is in seeing evidence-based measures adopted widely. |
| **Farmers and farm workers** | **Supply chain partners** (Hatcheries, feed suppliers, slaughterhouses) | S1-S3, (S5) | Manage external inputs/outputs that could carry infection between farms. They implement checkpoints (vehicle disinfection, controlled farm entry) that either prevent or inadvertently cause cross-farm contamination. | **High:** These partners can be a weak link or a protective buffer for farm biosecurity. Good practices here prevent farm-to-farm virus spread for Segments 1–3. Conversely, lapses can rapidly transmit infection across multiple farms despite those farms' own measures. | **Moderate:** At the corporate level, their interest is high – hatchery, feed, and processing companies have strong financial incentive to avoid outbreaks disrupting operations. However, individual employees' commitment can vary. The campaign leverages management's high interest to improve overall compliance. |
| | **Drivers & catching crews** (Feed truck drivers, live-haul teams, equipment technicians) | S1-S3, (S5) | Mobile personnel who visit multiple farms must adhere to farm biosecurity rules to avoid carrying pathogens between sites. They are often contracted or employed by supply chain companies. Their actions on the road can make the difference between containing a virus or spreading it to new farms. | **High (potential):** If they neglect precautions, they can become vectors for infection across farms. | **Low individually:** Many drivers and catching crew members view biosecurity steps as time-consuming burdens and may not execute them unless strictly required. Their personal motivation to follow every |

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| | | | | | protocol is generally limited. |
| | **Field biosecurity-specific maintenance workers** | S1-S3, S5 | Trained personnel responsible for installing, maintaining, and repairing biosecurity infrastructure on farms. They may be employed directly by farms or contracted through specialised service providers. | **High:** Their work directly affects the functionality and reliability of physical biosecurity measures. Their presence on-site also provides opportunities to reinforce correct practices and clarify protocols, especially for less experienced farmers or operational staff. | **Moderate to high**: While not always biosecurity specialists, many are trained in hygiene protocols and understand their role in disease prevention. |
| | **On-farm workforce** (Barn workers, farm technicians) | S5, (S1-S3) | Farm employees who carry out daily tasks (cleaning sheds, caring for birds, handling equipment) that uphold biosecurity standards. They follow procedures set by the farm manager. | **High:** Farm biosecurity plans ultimately rely on these workers to execute them every day. | **Moderate:** Generally, farm workers take their cue from management. They will carry out required tasks, but their personal investment varies. |
| | **Neighbouring farmers & peer champions** | S1-S4 | Local farmers who share advice informally and set community norms. They might exchange biosecurity tips at feed stores or online groups, and a respected farmer's practices often become the model others follow. In tight-knit farming communities (including online forums for hobby farmers), they exert social pressure: non-compliance may be criticised or corrected by peers, while diligent biosecurity is praised and emulated. | **High:** Social factors greatly influence willingness to implement measures. When a well-regarded farmer in a region adopts stricter biosecurity and communicates its importance (Segments 1–3), neighbours are more likely to improve their own practices. Similarly, hobby keepers (Segment 4) in community networks often follow advice from more experienced local keepers. | **Moderate to high:** Many farmers have a genuine sense of social responsibility and do not want to be the source of an outbreak that harms their neighbours or the wider industry. Those who have personally experienced an AI outbreak, in particular, often become strong advocates for biosecurity in their community. |
| **Advocacy** | **Labour unions & safety representatives** (Farm worker unions) | S5 | Represent farm workers' interests and advocate for safe, reasonable working conditions, which can include biosecurity-related provisions. | **Moderate:** Their advocacy indirectly improves compliance. By making biosecurity part of worker welfare, they help remove barriers (like rushed schedules or lack of gear) that often cause lapses. However, they typically do not dictate daily farm practice. | **Moderate to high:** Their priority is protecting workers' health and job security. Large AI outbreaks lead to stressful culling operations and even farm closures, which unions want to avoid. Therefore, they support biosecurity efforts that prevent such crises. |

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| | **Farmer associations & co-ops** (Producer groups, farmer unions) | S1-S3, (S4) | Farmer-led organizations that disseminate information, offer training, and foster peer accountability. They regularly update members on outbreak status and best practices and often liaise with authorities. | **High:** These bodies are highly trusted by farmers and serve as a key information source alongside vets. When an association strongly endorses a biosecurity practice or sets a rule within its membership, farmers in Segments 1–3 are much more likely to comply. They also create a supportive network – farmers benchmark themselves against peers through these groups, which has been shown to encourage behaviour change via friendly competition and social norms. While backyard keepers (Segment 4) are often outside formal associations, similar local clubs fill that role for them. | **High:** Protecting flock health is in the direct interest of these organizations, as it safeguards their members' livelihoods. They actively partner in outreach efforts. |
| | **Wildlife & environment organizations** (Bird conservation NGOs, hunting groups) | S1, S4 | Emphasise the risks of AI transmission via wild birds and advocate measures to reduce contact between wild fauna and domestic poultry. | **Low to moderate:** They are not primary influencers for farmers' routine behaviour. However, they reinforce specific aspects of risk perception. In general, farmers listen more to vets or peers than to environmental groups, so the impact of these groups is mainly to add external pressure (e.g., media coverage of wild bird AI cases making farmers more alert). | **High:** Their core mission is to protect wildlife and biodiversity, which aligns with preventing AI spread in poultry. |
| **Community** | **Younger family members on farms** | S1, S2 | Next-generation farmers who are more educated on modern practices and often push for improved biosecurity on their family farms. | **Moderate to high (within their farm):** They don't influence other farms directly, but their involvement significantly raises their own farm's biosecurity level. If the older generation is resistant, some recommended steps might not be adopted – a common "generational" gap | **High:** They have a long-term stake in the farm's success and tend to be open to innovation and external advice. |

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| | | | | noted in several cases. | |
| | **Local community anchors** (Feed store owners, market organisers) | S4, (S1) | Act as informal information hubs at the grassroots level. Feed store owners and market managers often relay outbreak news and distribute flyers or tips when customers come in. They have personal rapport with local farmers and hobbyists and can quickly spread urgent information by word-of-mouth. | **Moderate:** They extend the campaign's reach to audiences that formal channels might miss. For Segment 1 farmers, these anchors play a supplementary role: they reinforce information and sometimes facilitate farmer-to-farmer communication. | **Moderate to high:** These community members care about the local agricultural community's well-being (and by extension, their own business continuity). |
| | **Schools & youth clubs** (4-H, FFA, etc.) | S1, S4 | Educate children on poultry care and disease prevention, instilling biosecurity awareness early. Agricultural youth programs (4-H, junior farmer clubs) sometimes include biosecurity in their projects. | **Low (immediate), High (long-term):** In the short term, their influence on current farm operations is subtle. A backyard keeper might make a small improvement because their child learned about AI at school, but major decisions on commercial farms are not driven by schools. However, the long-term impact is significant: young people educated in these programs will carry that knowledge and more positive attitude into the industry as they grow up. | **High:** Educators and youth leaders are highly motivated to include biosecurity lessons as part of fostering responsible animal husbandry. |

## 5.2 Stakeholder ranking and prioritisation

The stakeholder mapping table above provides a consolidated overview of which stakeholders are relevant to each target audience segment, as well as their respective levels of interest and potential impact. To translate this overview into actionable insights, the following analysis examines each target audience segment individually.

For each segment, stakeholders are assigned to one of four interest–impact categories, which clarify their strategic priority and inform the appropriate engagement approach within the campaign. High Interest–High Impact (HH) stakeholders combine strong engagement with a high capacity to influence campaign outcomes and are therefore prioritised as key messengers and core multipliers. High Interest–Low Impact (HL) stakeholders, while highly engaged, have more limited influence and are primarily mobilised as supporting multipliers to reinforce messages within specific networks. Low Interest–High Impact (LH) stakeholders possess significant influence but show limited initial engagement; these actors require targeted engagement to increase their interest and may become strategic messengers over time. Finally, Low Interest–Low Impact (LL) stakeholders have neither strong interest nor

significant influence and are therefore not prioritised for active involvement in campaign delivery.

**Segment 1 – Experienced Farmers (55+ on Medium/Large Family Farms)**

These farmers possess extensive experience and established routines. They are generally aware of avian influenza (AI) risks, often shaped by past outbreak experiences. They tend to rely on traditional sources of information, particularly veterinarians and producer associations, and may be cautious about adopting new practices unless the benefits are clearly demonstrated. Their operations often involve family labour and are embedded in local farming communities.

Building on the insights from Section 3.1 and from Table 3, we map the relevant stakeholders for segment 1 as follows:

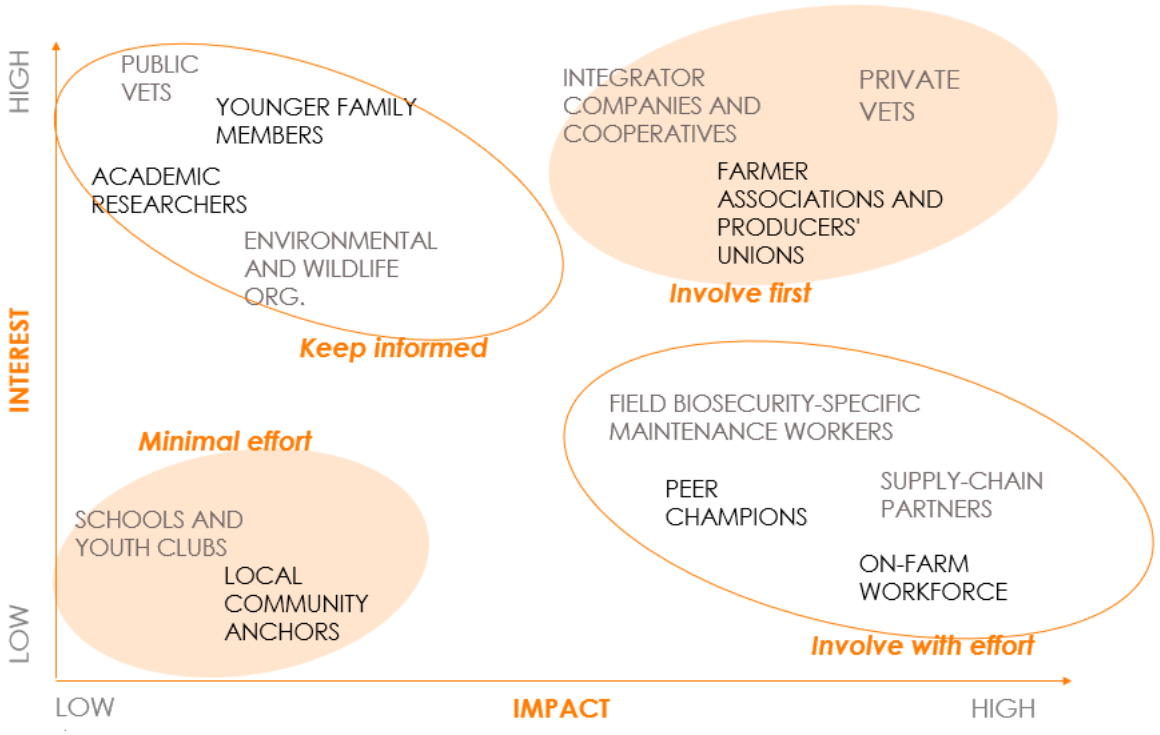


**Figure 3. Segment 1 stakeholder map**

- **HH** – High Impact / High Interest (Involve first)
  - Integrator companies and cooperatives: These farmers often operate under long-standing contracts with integrators or cooperatives, which set and enforce biosecurity standards. Given the economic interdependence, integrators have both the authority and the incentive to ensure compliance. Their field officers and technical teams are well-positioned to reinforce campaign messages and provide practical support.
  - Farmer associations and producer unions: These organizations maintain trusted communication channels with Segment 1 through newsletters, meetings, and peer-led training. Their farmer-led structure enhances credibility as human-guided messages are best received by this segment. They are highly motivated

to protect members' livelihoods and are natural allies in disseminating campaign content, especially when endorsed by respected association leaders.
    - Private veterinarians: Veterinarians are among the most trusted advisors for this segment. Although Segment 1 engages with vets often only in a reactive way (e.g., during health issues), vets can be activated as proactive messengers. Their professional commitment to disease prevention aligns closely with campaign goals, and their influence on farmer behaviour is substantial.
- HL – High Impact / Low Interest (Involve with effort)
    - Peer champions (neighbouring farmers): Experienced farmers are often influenced by peers who have successfully implemented biosecurity measures and/or have suffered from outbreaks in the past. Testimonials or on-farm demonstrations by respected local farmers can be persuasive. While their credibility is high, their willingness to act as campaign advocates depends on personal motivation and past experiences with AI.
    - On-farm workforce: Many Segment 1 farms employ a small number of workers or rely on family members. These individuals are responsible for implementing daily biosecurity routines. Their impact is high, but their interest may be moderate due to time constraints, lack of understanding, and overall low sense of ownership on the matter. Campaign support should include simple, farmer-delivered training materials to facilitate internal knowledge transfer.
    - Field biosecurity–specific maintenance workers: They are specialised professionals that Segment 1 farms may contract to install and maintain the physical infrastructure required to meet biosecurity standards. Their influence on the practical implementation of biosecurity measures is therefore high. However, they are unlikely to function as key messengers for this segment. The decision to engage these professionals is made by the farm itself, and their involvement typically indicates that the farmer is already aware of biosecurity obligations. Additionally, although these workers might be specialised in the setting up of fences and barriers, they may not have a clear understanding of the role of said barriers in preventing AI spreading.
    - Supply chain partners: Entities such as hatcheries, feed suppliers, and slaughterhouses interact regularly with Segment 1 farms and can influence biosecurity outcomes. However, they may not perceive biosecurity as their responsibility. Engagement requires coordinated efforts, potentially through integrator contracts or collective advocacy by farmer associations to establish shared standards and expectations.
- **LH** – Low Impact / High Interest (Keep informed)
    - Public veterinarians, animal health services, and tech advisors: While Segment 1 values human-delivered guidance and places high trust in veterinarians, the audience segmentation report notes a degree of scepticism toward official authorities. Municipal and regional veterinary officers or public animal health officials may be less perceived as partners and more as the "authority" , as opposed to private practitioners who are rather seen as allies on their side.
    - Younger family members: On some farms, younger relatives may advocate for modernizing practices, including biosecurity. Their interest is high, particularly when they anticipate inheriting the farm. However, their influence depends on family dynamics and the openness of the senior farmer. Campaigns can support these individuals by providing accessible materials that help them make the case for change within the family.

- Academic researchers: While their direct influence on Segment 1 is limited, their findings underpin the advice given by veterinarians and associations. Ensuring researchers are informed allows their evidence to be translated into practical, credible messages for farmers.
- Environmental and wildlife organizations: These groups promote practices to reduce wild bird contact with poultry. Although their advice is relevant, Segment 1 farmers may not view them as authoritative on farm management. Their role is to reinforce campaign messages, particularly those related to environmental risk factors, through consistent and complementary communication.

- **LL** – Low Impact / Low Interest (Minimal effort)
  - Schools and youth clubs: While their short-term impact on this segment is limited, schools may educate children of farmers on the importance of biosecurity. Their influence may grow over time as younger generations become more involved in farm management.
  - Local community anchors: For Segment 1, these stakeholders may play a supplementary role, reinforcing pre-existing information. Their relevance may increase during outbreaks, when they can help disseminate urgent updates or reinforce compliance norms.

**Segment 2 – Less Experienced Farmers (25–55, Medium/Large Family Farms)**

These farmers are typically more open to innovation and demonstrate a strong sense of personal responsibility for biosecurity. They are often actively seeking information, have clearer knowledge needs, and are more likely to engage with structured training or advisory services. However, they may face constraints related to time, budget, or authority (e.g. needing approval from older family members or partners).

Building on the insights from Section 3.1 and from Table 3, we map the relevant stakeholders for segment 2 as follows:

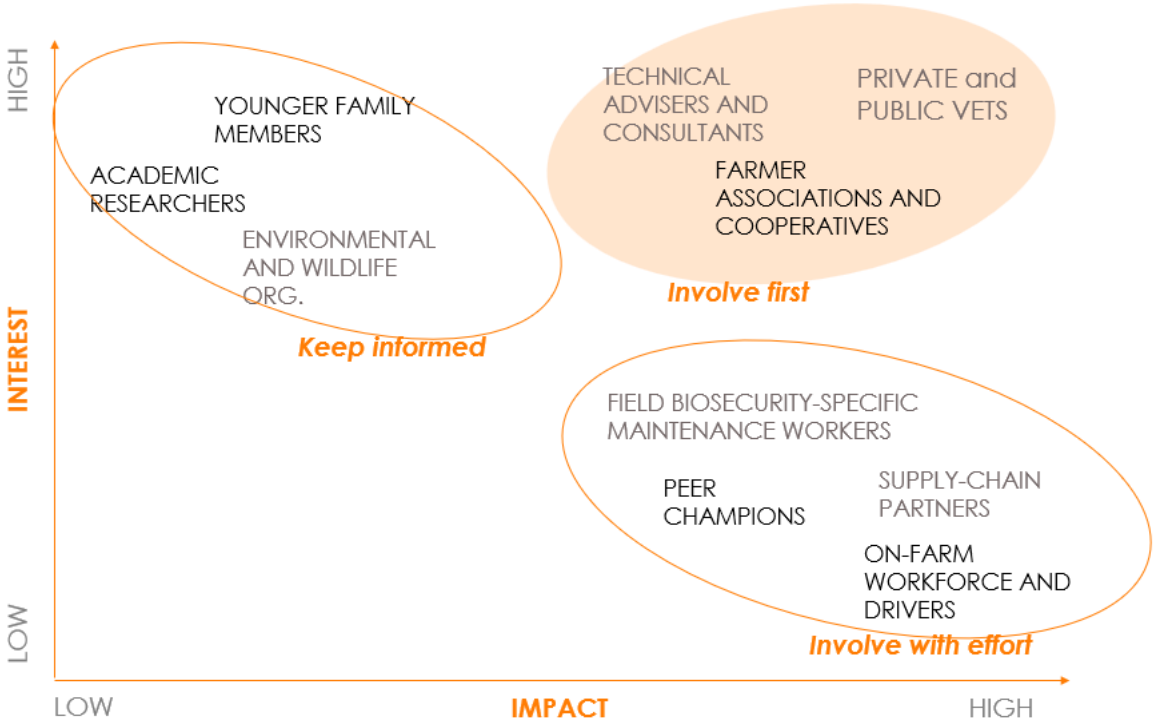


**Figure 4. Segment 2 stakeholder map**

- **HH** – High Impact / High Interest (Involve first)
  - Private and public veterinarians (poultry specialists): This segment is highly receptive to veterinary advice, whether private or public, and often seeks it proactively. Vets are seen as trusted experts and are well-positioned to provide tailored, actionable guidance. Their professional commitment to disease prevention aligns with the campaign's objectives, making them ideal messengers.
  - Technical advisers and consultants: These farmers are more likely to engage with feed reps, biosecurity coaches, and extension officers. They value practical tools and benchmarking systems that help them assess and improve their practices. Advisers can provide targeted support and reinforce campaign messages through audits, workshops, and one-on-one consultations.
  - Farmer associations and cooperatives: Segment 2 farmers often participate in training and events organised by producer groups. These associations are trusted and provide a platform for peer learning and collective action. Their interest in promoting biosecurity is high, and they can effectively disseminate campaign materials and organise local engagement activities.
- **HL** – High Impact / Low Interest (Involve with Effort)
  - Supply chain partners: While these farmers are more likely to question the biosecurity practices of hatcheries, feed suppliers, and processors, they may lack the leverage to enforce changes. These partners have a significant impact on farm-level risk but may not prioritise biosecurity unless incentivised or regulated. Campaign efforts should include engaging these partners through industry-wide standards or cooperative agreements.
  - Field biosecurity–specific maintenance workers: Same as with Segment 1, they are specialised professionals that Segment 2 farms may contract to install and maintain the physical infrastructure required to meet biosecurity standards. The

decision to engage these professionals is made by the farm itself and is most likely high for this segment. Still, although these workers might be specialised in the setting up of barriers, they may not have a clear understanding of their role in preventing AI spreading.
    - On-farm workforce and drivers: Segment 2 farmers often manage small teams or family members. They also interact with contracted external workers, like drivers, who have strong impact on AI spreading on their farms. While S2 may be committed to biosecurity, ensuring consistent implementation by others requires effort. Workers' interest may vary, and the campaign can support farmers by providing accessible training materials and emphasizing the importance of team compliance.
    - Peer champions: While this segment is more likely to seek expert advice, peer influence remains important. Farmers who have successfully implemented biosecurity improvements can serve as credible advocates. Organizing peer-led demonstrations or case studies can enhance uptake, though identifying and mobilizing these champions requires targeted outreach.
- **LH** – Low Impact / High Interest (Keep Informed)
    - Younger family members and farm successors: In many cases, Segment 2 farmers are themselves the younger generation. However, where even younger individuals are involved (e.g. teenage children or recent graduates), they may contribute ideas or assist with implementation. Their interest is high, and they can be engaged through youth-oriented materials or digital tools.
    - Academic researchers: This segment is more likely to be aware of or interested in the scientific basis for biosecurity recommendations. While direct influence is limited, research findings can be translated into practical guidance via trusted intermediaries. Keeping researchers informed ensures that campaign content remains evidence-based and relevant.
    - Environmental and wildlife organizations: These groups may provide useful information on wild bird risks but are not primary influencers for this segment. Their advice can reinforce specific messages (e.g. on preventing wild bird contact) but should be aligned with the campaign's core messaging to avoid confusion or scepticism.
- **LL** – Low Impact / Low Interest (Minimal Effort)
    - No relevant stakeholders identified in this category.

**Segment 3 – Managers of large firms (Large industrial farms)**

These managers operate within corporate structures and are responsible for implementing company-mandated biosecurity protocols. They are typically well-informed, professionally trained, and accountable for compliance with internal standards and external regulations. While they may not own the farm, they are often evaluated on performance metrics that include disease prevention and operational efficiency.

Building on the insights from Section 3.1 and from Table 3, we map the relevant stakeholders for segment 3 as follows:

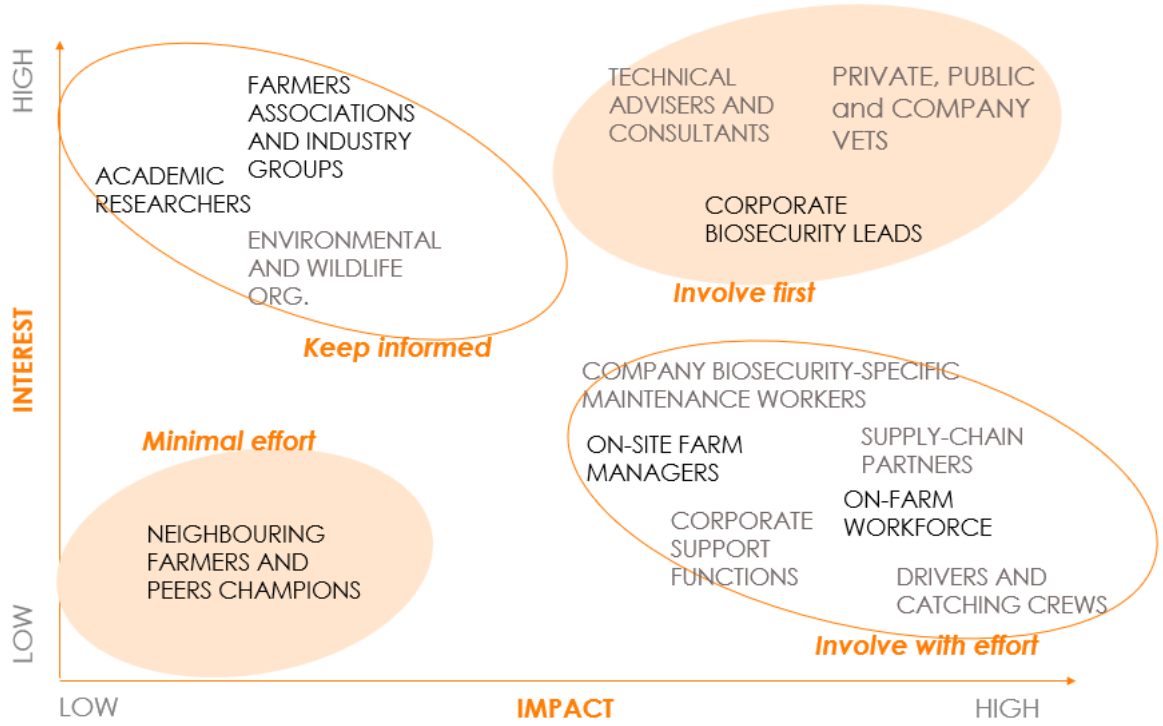


**Figure 5. Segment 3 stakeholder map**

- **HH** – High Impact / High Interest (Involve first)
  - Private, public veterinarians and company vets: Farm managers rely on veterinarians for diagnostics, outbreak response, and ongoing health monitoring. Vets are trusted for their technical expertise and are often involved in training staff. Their high credibility and professional investment in disease prevention make them ideal campaign messengers.
  - Technical advisers and consultants: This segment frequently engages with feed reps, hygiene consultants, and equipment suppliers. These advisers provide specialised support and help managers meet internal benchmarks. Their ability to translate scientific recommendations into operational improvements makes them valuable allies for campaign delivery.
  - Corporate biosecurity leads (head-office): These individuals are responsible for defining and enforcing company-wide biosecurity policies. As the central authority on biosecurity within vertically integrated enterprises, they develop standard operating procedures (SOPs), allocate resources, oversee audits, and coordinate training across all sites. Their strategic role ensures consistency, compliance, and alignment with both internal standards and external campaigns. Their influence on farm-level implementation is high, and their interest in preventing outbreaks is strong, given the operational and reputational risks involved.
- **HL** – High Impact / Low Interest (Involve with Effort)
  - On-site farm managers: Corporate managers depend on on-site line managers to ensure biosecurity protocols are correctly passed-on to farm workers. Their impact is high, but their interest is highly dependant on their locus of control.
  - Company biosecurity-specific maintenance workers: These staff are responsible for implementing and maintaining biosecurity infrastructure (e.g. hygiene locks,

fencing, disinfection systems). Their operational impact is high, but their interest may vary depending on training, recognition, and clarity of their role in disease prevention. Campaigns should provide clear SOPs and reinforce their contribution to overall farm protection.
    - On-farm workforce: Managers depend on workers to implement daily biosecurity routines. While the workforce's impact is high, their interest may be limited by workload, training gaps, or perceived inconvenience. Campaign efforts should support managers with tools to train and motivate staff, such as visual guides or checklists.
    - Drivers and catching crews: These mobile personnel interact with multiple farms and can introduce or prevent cross-contamination. Their impact is high, but their interest is often low unless protocols are clearly communicated and enforced. Campaigns should support managers in ensuring these workers receive pre-arrival instructions and follow hygiene protocols.
    - Supply chain partners: Farm managers coordinate with hatcheries, feed suppliers, and processors, whose practices can effect on-farm biosecurity. However, these partners may not prioritise biosecurity unless required by contract. Managers can influence them through procurement standards, but broader change may require campaign engagement at the corporate level.
    - Corporate support functions: Departments such as HR, logistics, and procurement influence the resources available for biosecurity (e.g. staff time, equipment). While their direct interest may be limited, their decisions shape implementation feasibility. Campaigns can support farm managers by providing business cases or templates that help justify resource allocation.
- **LH** – Low Impact / High Interest (Keep Informed)
    - Academic researchers: Farm managers may not engage directly with research, but they benefit from evidence-based tools and protocols developed by academic institutions. Keeping researchers informed ensures that campaign materials reflect the latest science and are relevant to operational realities.
    - Farmer associations and industry groups: While this segment is less likely to be active in traditional farmer unions, they may still receive information through industry briefings or corporate memberships. These channels can reinforce campaign messages and provide peer benchmarking data.
    - Environmental and wildlife organizations: These groups may offer guidance on managing wild bird risks but are not primary influencers for this segment. Their messaging should align with campaign content to avoid confusion, but direct engagement is not a priority.
- **LL** – Low Impact / Low Interest (Minimal Effort)
    - Neighbouring farmers and peer champions: In corporate settings, peer influence is limited. Managers may share insights informally at industry events, but decisions are typically guided by internal policies rather than community norms. Peer-led engagement is unlikely to be effective without corporate endorsement.

**Segment 4 – Small-Scale & Backyard Poultry Keepers**

This segment includes hobbyists, backyard poultry keepers, and small-scale farmers who often operate outside formal agricultural systems. They typically have low awareness of biosecurity protocols, limited access to veterinary services, and minimal engagement with official communications. Their practices are shaped by tradition, resource constraints, and

informal networks. Risk perception is generally low, and compliance with recommended measures is inconsistent.

Building on the insights from Section 3.1 and from Table 3, we map the relevant stakeholders for segment 4 as follows:

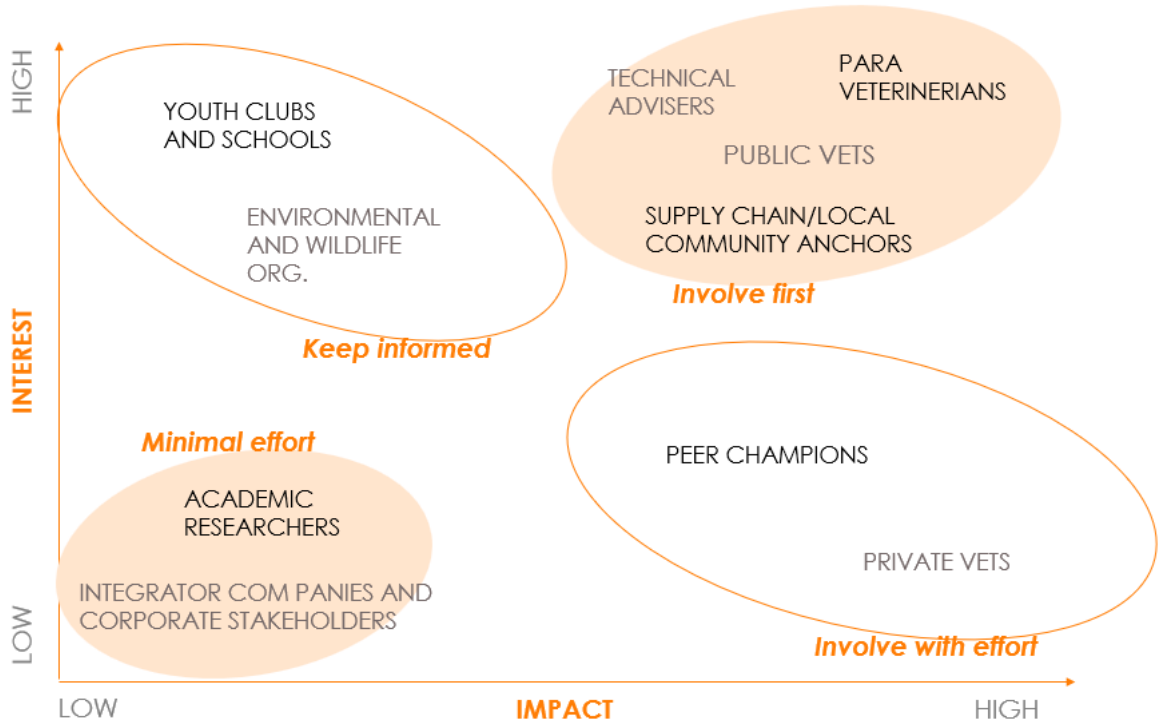


**Figure 6. Segment 4 stakeholder map**

- **HH** – High Impact / High Interest (Involve first)
  - Para-veterinarians and local extension officers: These professionals are often the only accessible source of technical support for small-scale keepers. Their community-based approach and practical demonstrations are well-suited to this segment's needs. Their interest in the campaign is high, and they are well-positioned to deliver tailored, trust-based guidance.
  - Public veterinary authorities: While they set the legal framework, their direct influence on smallholders is limited. Many in this segment are unaware of or sceptical toward official guidance. However, during outbreaks, mandates (e.g. confinement orders) must be followed. Campaigns should support authorities with simplified, accessible materials and consider partnerships with local intermediaries to improve message uptake.
  - Supply-chain/Local community anchors (feed stores, markets): These are trusted sources of information for smallholders. Feed store owners and market organisers often have personal relationships with keepers and can distribute campaign materials, reinforce key messages, and alert customers to outbreaks. Their interest is moderate to high, especially when equipped with clear, easy-to-share resources.
  - Technical advisers and extension services: In regions where extension programs are active, smallholders benefit from workshops, leaflets, and home visits. These advisers can bridge the gap between formal recommendations and practical

implementation. Their professional commitment to improving compliance aligns with campaign goals.

- **HL** – High Impact / Low Interest (Involve with Effort)
  - Private veterinarians: While vets are highly credible, smallholders rarely seek their services due to cost or perceived irrelevance. Their potential impact is high if engaged, but outreach requires effort. Campaigns should consider subsidised vet visits or community vet days to increase access and trust.
  - Peer champions (local hobbyists or small-scale leaders): Within this segment, some individuals are more informed and proactive. These local champions can influence others through informal conversations, social media, or community events. Identifying and equipping them with campaign materials can amplify reach, though their interest and availability may vary.
- **LH** – Low Impact / High Interest (Keep Informed)
  - Youth clubs and schools: Children in rural areas may participate in poultry-related projects and bring biosecurity messages home. While their immediate influence is limited, they can prompt small changes in household practices. Their interest is high, and they are receptive to engaging, age-appropriate materials.
  - Environmental and wildlife organizations: These groups often engage with rural communities on issues like wild bird protection. Their advice on minimizing contact between domestic and wild birds aligns with campaign goals. While their direct influence is limited, they can reinforce key messages through community events or printed materials.
- **LL** – Low Impact / Low Interest (Minimal Effort)
  - Academic researchers: Their role is indirect, providing evidence that informs campaign content. Smallholders are unlikely to engage with academic outputs directly, but benefit when research is translated into simple, actionable guidance by trusted intermediaries.
  - Integrator companies and corporate stakeholders: This segment typically operates outside formal supply chains and is not subject to integrator oversight. These stakeholders have minimal contact with smallholders and limited incentive to engage directly. Their role in this segment is negligible.

**Segment 5 – On-site Operational Workforce (Farm workers and labourers)**

This segment includes farm workers, technicians, and maintenance staff who are responsible for the daily implementation of biosecurity measures. While they may not be involved in decision-making, their actions directly determine whether protocols are followed consistently. Their awareness and understanding of biosecurity vary, and their motivation is often shaped by workplace culture, training, and supervision.

Building on the insights from Section 3.1 and from Table 3, we map the relevant stakeholders for segment 5 as follows:

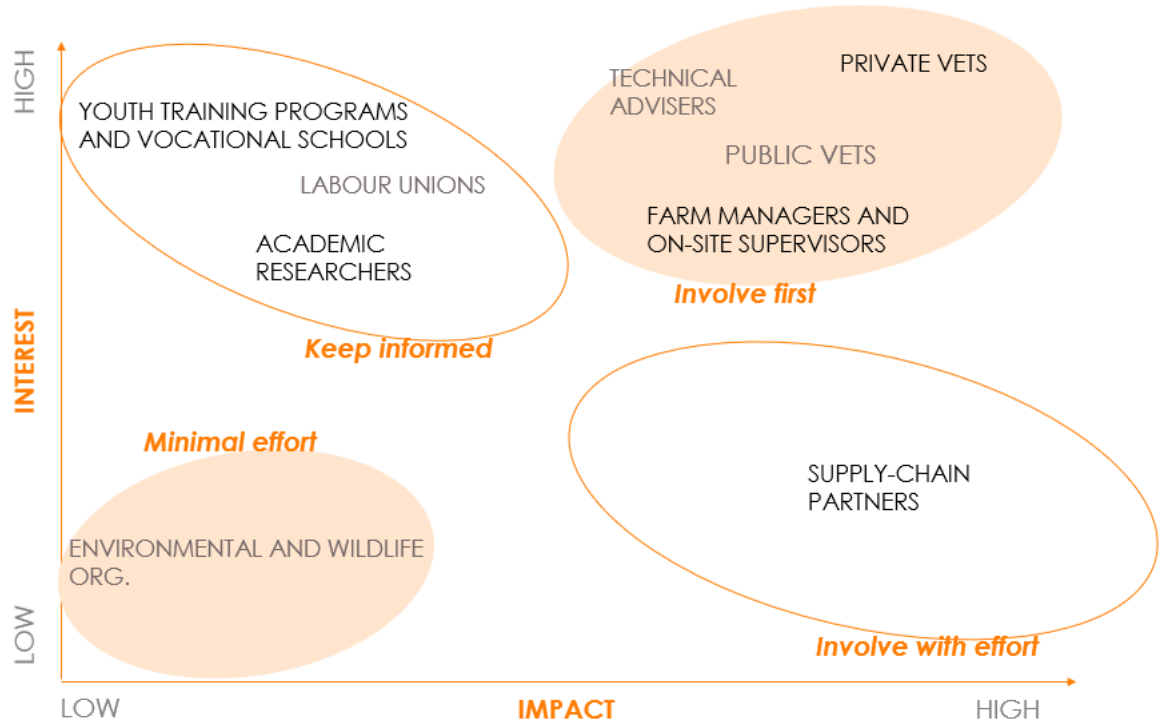


**Figure 7. Segment 5 stakeholder map**

- **HH** – High Impact / High Interest (Involve First)
  - Private and public veterinarians and technical advisers: Workers often receive training or demonstrations from visiting vets or advisers. These professionals can reinforce key messages, correct misunderstandings, and provide practical tips. Their credibility and regular presence on farms make them effective messengers. Their interest in the campaign is high, particularly when it supports their advisory role.
  - Farm managers and on-site supervisors: These individuals are the primary source of instruction and oversight for Segment 5. Their expectations, communication style, and commitment to biosecurity strongly influence worker behaviour. When managers prioritise training and model good practices, compliance improves significantly. Their interest is high, as they are accountable for farm performance and disease prevention.
- **HL** – High Impact / Low Interest (Involve with Effort)
  - Supply chain partners: Workers may interact with external personnel (e.g. catching crews, drivers) whose practices effect on-farm biosecurity. These interactions can introduce risks if protocols are not followed. While workers may not control these interactions, they can be trained to enforce or report non-compliance. Engaging supply chain partners to align expectations and provide joint training can enhance outcomes.
- **LH** – Low Impact / High Interest (Keep Informed)
  - Academic researchers: While not directly involved with workers, researchers contribute to the development of training materials and protocols. Their findings can inform best practices and help tailor interventions to the realities of on-farm work. Keeping them informed ensures that campaign content is grounded in evidence and practical for this audience.

- Youth training programs and vocational schools: These institutions prepare future members of the workforce. Their curricula can incorporate biosecurity principles, fostering a culture of compliance from the outset. Their interest is high, and they can be engaged through partnerships and resource sharing.
- Labour unions and safety representatives: These groups can advocate for better working conditions that support biosecurity (e.g. adequate time for cleaning, access to PPE). While their direct influence on daily behaviour is limited, they can help remove structural barriers to compliance. Their interest is moderate to high, particularly when biosecurity is framed as a worker safety issue.

- **LL** – Low Impact / Low Interest (Minimal Effort)
  - Environmental and wildlife organizations: These groups have limited interaction with the on-site workforce. While their messaging on wild bird risks is relevant, it is unlikely to reach or resonate with this segment unless mediated through other stakeholders.

After having mapped and profiled all the relevant stakeholders for each targeted segment, we identify the following actors as key agents of change in the context of the AI awareness-raising communication campaign:

**Table 4. Breakdown of identified messengers and multipliers by segment**

| Campaign role | Stakeholders | Target Segment |
|---|---|---|
| Messenger | Vets (private, public, para-veterinarians) | ALL |
| Messenger | Farmers' associations | S1, S2, S5, (S4) |
| Messenger | CVOs and animal-health authorities | ALL |
| Messenger | NGOs | ALL |
| Messenger | Labour unions | S5 |
| Messenger | Supply chain partners | ALL |
| Multiplier | Farm managers and on-site supervisors | S5 |
| Multiplier | Corporate biosecurity leads (head office) | S3 |
| Multiplier | Peers | S1, S2, S5 - themselves, (S4) |
| Multiplier | Participating Members States | ALL |

# 6 The campaign strategy

## 6.1 Campaign structure

The campaign strategy is built on the finding that limited uptake of biosecurity measures is driven less by lack of awareness than by a combination of practical, psychological, and structural barriers. The situational analysis shows that for each segment combinations of economic and time constraints, resistance to disrupting routines, low self-efficacy, doubts about the effectiveness of measures, and housing and animal welfare constraints systematically limit adoption. Among backyard and semi-subsistence keepers, these barriers are compounded by lower knowledge and lower risk perception. At the same time, the evidence shows that farmers are more likely to change practices when measures are perceived as relevant, feasible, proportionate, and effective, and when advice is delivered by trusted and credible intermediaries.

The strategy is therefore constructed by directly matching these barriers with specific communication levers. To address scepticism and low perceived efficacy, the campaigns should focus on clearly linking priority measures to transmission pathways and tangible outcomes. To address time, cost, and feasibility constraints, it could prioritise measures that score highly on both effectiveness and practicality and promotes low friction routines that fit existing workflows. To address resistance to change and low self-efficacy, it should use micro learning tools, simple visuals, and step by step guidance that reduce the psychological cost of adoption. To address credibility and legitimacy gaps, it can systematically mobilise veterinarians, technical advisers, and supply chain actors as primary messengers and make visible the alignment between authorities and the poultry sector. To address weak reinforcement outside outbreak periods, it can introduce repeated prompts, seasonal timing, and benchmarking oriented tools that support sustained practice.


**Figure 8. Campaign barriers and levers**

On this basis, the campaign is designed not as a one-off awareness exercise but as a structured awareness pathway over three consecutive years. It could therefore start by clarifying the logic and priority of measures, then focus on supporting adoption under real world constraints, and finally reinforce routines over time. By translating identified barriers into targeted levers and embedding them in a phased strategy, the campaign should aim to close the gap between knowing and doing and to increase the consistent and sustained adoption of key biosecurity practices across all poultry sectors.

While the campaign should deliberately prioritise practical adoption levers over general risk awareness, it is nonetheless firmly grounded in the broader animal and public health risk posed by highly pathogenic avian influenza. The strategy is backed by the growing scientific evidence that HPAI viruses are increasingly affecting not only birds but also a widening range of mammalian species, and that continued circulation increases the probability of viral adaptation with potential implications for human health. This context provides the underlying justification for sustained prevention efforts, even in periods without major outbreaks. By situating farm level biosecurity within a wider One Health perspective, the campaign and its potential activities will have the power to reinforce the legitimacy of preventive measures and

will underline that protecting poultry also contributes to protecting other animals and reducing the long-term risk of zoonotic transmission.

### 6.1.1 Prioritising measures

To ensure consistency and continuity, the campaign and its communication activities should build on the 2025 NoBirdFlu EFSA biosecurity framework and retains its core principles. However, the situational analysis and behavioural evidence indicate that long and undifferentiated lists of measures reduce comprehension, dilute priorities, and weaken sustained adoption. When too many actions are presented as equally important, farmers might want to focus on a few familiar routines and ignore or abandon others, particularly those that are time consuming, costly, or perceived as less feasible.

The strategy therefore deliberately reduces the number of promoted measures to a smaller, more digestible set of flagship practices that meet three criteria: they are supported by evidence in terms of effectiveness, they are feasible to implement across most production systems, and they address behaviours that are simple but easily neglected and difficult to sustain over time. Measures that require major structural investments, that are highly context specific, or that overlap with broader farm management standards are not emphasised because they are unimportant, but because they are less actionable as campaign anchors for a communication driven intervention.

Flagship measures promoted across a potential three-year campaign to all segments except the backyard bird keepers, are:

1. **Control access to the farm**
   Only allow people and vehicles when necessary. Register and manage movements.

2. **Change and clean at entry**
   Wear clean clothes, wash hands, change and disinfect footwear.

3. **Separate clean and dirty areas**
   Maintain strict separation between external areas and poultry areas.

4. **Separate birds**
   Keep birds separated from wild birds, from sick birds, and from other species.

5. **Report unusual signs immediately**
   Observe daily, isolate suspect birds, and contact the veterinarian.

Measures such as feed storage, water quality, batch management, and structural barriers remain part of technical guidance on the website but are de-emphasised in campaign messaging because they are either already well integrated in standards or require context-specific implementation beyond the scope of simple communication prompts.

In parallel, the communication activities should introduce a differentiated minimum set for small scale keepers, for whom economic, structural, and motivational constraints are stronger. For this group, the focus is placed on a very small number of low-cost actions that directly reduce the highest transmission risks and that can realistically be sustained in everyday practice. This approach preserves alignment with the EFSA framework while increasing clarity, feasibility, and the likelihood of consistent adoption.

For this segment, the campaign promotes a **small core set** of actions:

1. **Separate birds from wild birds**
   Keep birds under cover or protected as much as possible.

2. **Basic hygiene at entry**
   Use separate shoes or clean boots before entering the coop. Wear gloves and wash hands.

3. **Do not mix species**
   Avoid keeping different bird species together.

4. **Report unusual signs**
   Separate birds and contact a veterinarian or local service if birds become sick or die suddenly.

This priority list reflects the evidence that **overly complex requirements discourage action** in this group, while a few simple and visible behaviours can substantially reduce risk when applied consistently.

### 6.1.2 Campaign structure, messengers, tools and tactics

Using the campaign logic and the above prioritisation of measures the future campaign could comprise the following structure.

**Table 5. Campaign overview**

| Year | Y1 - Legitimacy | Y2 - Adoption | Y3 - Normalise |
|---|---|---|---|
| **Objectives** | Turn high awareness into clear action logic and legitimacy. | Push and support adoption through trusted intermediaries and practical facilitation. | Institutionalise routines and install biosecurity as a professional norm |
| **Topics** | - How HPAI is introduced on farms.<br>- Where human mediated transmission occurs.<br>- Why adopting a small number of simple biosecurity measures reduce concrete risks.<br>- Transmission logic, from birds to mammals or even humans and the potential harms | - How to implement clean dirty separation. (not for small scale keepers)<br>- How to physically separate birds from wild birds, sick birds, and other species.<br>- How to organise daily hygiene routines.<br>- How to manage visitors and vehicles in practice<br>- How to spot and report unusual signs | - What tends to slip over time.<br>- How to maintain a small number of simple measures stable.<br>- How to prepare for the coming high-risk season. |
| **Key tools, channels and tactics** | Leaflet, social media, website, stickers, PR activities (including social media, radio and national television) | Trainings, micro training videos, on-site demonstration, social media, PR activities (including social media, radio, and national television) | Check-lists, SMS reminders, social media, PR activities (including social media, radio and national television) |

As depicted in the table above, the strategy offers multiples options when it comes to key tools, channels and tactics. The multiyear strategy should make use of different media and channels to ensure it reaches all segments. To do so, the strategy highlights the potential use

of printed documents (leaflets, stickers, posters). These documents are to be provided by the communicating entities but also distributed by key supply chain actors. To do so, special attention should be put on the use of **websites**. The EFSA website should be the backbone of the campaign as it can serve as a centralised and certified space for information. Our recommendation is to have, on the website, a page dedicated to each participating country. This page should contain all the translated assets to be downloaded and ordered by year (each year the website pages should highlight the specific objectives of the year while keeping the content of other years accessible). Each page should have a link to the national authority website as well as their logos. It is crucial that the ties between the national authority and EFSA are saliently displayed for stakeholders to make the connection and to increase the perception of consistency and in turn enhance the legitimacy of messages. Similarly, we recommend that each participating country mirrors the information displayed on the country dedicated page on the EFSA website. This should then also include EFSA logos and a clear salient link to the EFSA website.

Another key channel is online social media. **Social media** can be leveraged to disseminate information throughout the years at specific moments. Finaly, space is made for **PR activities**. This entails the activation of multipliers and the reach out to partners with access to traditional media. As such, the campaign can aim to also reach wider audiences through EFSA and local partners contacts. It can then be considered that campaign content could be distributed on other organisations newsletters, radio programmes, TV programmes or even specialists 'interventions.

The description of the strategy is a proposal for what could be used in a multiannual campaign orchestrated by EFSA and the European Commission. This strategy is not meant to be a prescriptive list of actions to implement rather a proposition for different activities that could be deployed. This logic is followed because at the time of the drafting of this report the details of the future campaign have not been agreed upon. This entails that budgets are not set and the list of participating countries is not final.

This type of campaign should make use of the following messenger framework. This framework is based on the stakeholder mapping and is designed to ensure that biosecurity messages are credible, visible, and consistently delivered through existing trusted channels across the poultry sector. Rather than creating new communication structures, the campaign uses established professional, community, and supply-chain actors to disseminate aligned information in routine settings where target groups already receive guidance and advice.

**Table 6. Key campaign messengers**

| Messenger | Especially relevant for these segments | How they reach the segment |
|---|---|---|
| **Private/public/para-veterinarians** | All segments (with tailored roles) | Farm visits (S1, S2, S5), informal local contact and para- veterinarians for small-scale keepers (S3), safety briefings for workers (S4) |
| **Farmers' associations** | Experienced and less experienced family farmers (S1, S2) | Peer-led field visits, newsletters, WhatsApp groups, local meetings |
| **Supply-chain actors** | Small-scale & backyard keepers (S3), on-site workforce (S4) | Feed store owners (S3) at point of sale; drivers and crew leads (S4) during daily operations |
| **Chief Veterinary Officers** | Managers of large firms (S5) | Formal communications, industry briefings, regulatory alignment |

| | | |
|---|---|---|
| **Labour unions** | On-site operational workforce (S4) | Safety briefings, workplace posters, crew leader engagement |
| **NGOs**[2] | Small-scale & backyard keepers (S3), on-site workforce (S4) | Community outreach, local events, multilingual materials, support in low-trust settings |
| **Participating Member States** | All segments | Through PR activities, specific Member States taking part in the campaign can activate their network and access national TV and Radio programmes. |

## 6.2 Year 1 - Translate awareness into credible action

### 6.2.1 Targets and objectives

In Year 1, the objective of the strategy could be to build a **common** and **operational understanding of how avian influenza enters farms.** It could for instance focus on making direct links with which **basic actions that prevent most introductions**, ensuring that this understanding reaches all relevant segments of the poultry sector. As such, the first year could focus on moving from general awareness, which is already high in many groups, to clear comprehension of transmission logic and priority measures, with a strong emphasis on introducing the priority measures. This entails that the measures are highlighted and their implementation encouraged as early as possible before a deeper dive in year 2.

At this stage the strategy could deliberately target all audience segments identified in the study, including experienced and less experienced family farmers, managers of large firms, on-site operational workforce, and technical advisers, to establish a shared foundation of messages across the sector. At the same time, it should place a **special focus on semi-subsistence** and small-scale farmers, who have shown lower knowledge, lower risk perception, and lower uptake of recommended measures. For this group, the first year could prioritise very simple and visual materials, strong involvement of veterinarians and local services, and the systematic use of their supply chain as a communication channel, in particular feed supply stores, local retailers, and collection points where posters and brochures can be displayed and handed out. By using these everyday contact points, the campaign reaches farmers and bird keepers who are less connected to formal advisory systems and ensures that core messages are visible where routine decisions are made.

By concentrating in Year 1 on introducing a small number of core behaviours, a single reference website, and consistent messages about the legitimacy of biosecurity, the strategy can aim to create a common baseline of understanding and disseminate a small number of protective practices that all later campaign phases can build upon.

### 6.2.2 Topics and key messages

Considering the above objectives, the core topics to be included in year one could revolve around transmission routes and the legitimacy of biosecurity measures.

**Table 7. Core topics of communication for all segments (year1)**

[2] NGOs that work on sustainability and agro-ecology (e.g. Réseau CIVAM in France, Fundación Global Nature in Spain, Legambiente in Italy) could be involved, as they might already work closely with farmers for other projects and could be useful in reinforcing biosecurity messages in a non-institutional way.

| Core Topic | Core Message |
|---|---|
| **How HPAI is introduced on farms**<br>Purpose: make introduction routes concrete and predictable, not random. | - Most outbreaks enter farms through a few predictable routes.<br>- Wild birds, people, vehicles, and equipment bring the virus in.<br>- The virus comes from outside, not from bad luck. |
| **Where human mediated transmission occurs**<br>Purpose: Show the central role of daily routines and movements. | - People are one of the main carriers of the virus between farms and houses.<br>- Boots, clothes, hands, and equipment (including vehicles) move infection.<br>- What you do at the door matters most. |
| **Why a small number of simple measures reduce concrete risks**<br>Purpose: Announce the prioritisation and provide details on the key measures. | - A few measures prevent most introductions.<br>- Simple routines break the transmission chain.<br>- Consistency matters more than complexity. Separate birds from wild birds, sick birds, and other species (identifying sick birds, all in all out).<br>- Separation is the first and strongest barrier (clean and dirty spaces).<br>- Most protection starts by keeping birds apart.<br>- How to organise daily hygiene routines |
| **How circulation leads to mutation and wider risk**<br>Purpose: Link farm level prevention to long term animal and human health risk. | - The more the virus circulates, the more it can change.<br>- Infections in birds increase the risk of infection in other mammals.<br>- Reducing spread today reduces mutation risk tomorrow.<br>- Biosecurity protects animals and people.<br>- Biosecurity measures implementation can be the decisive factor when it comes to culling of flocks.<br>- Biosecurity measure are the best way to avoid large economic losses. |

### 6.2.3 Campaign formats, channels and actions

In Year 1, the campaign deliberately deploys a coherent and multi-channel communication architecture designed to make core messages appear consistent, visible, and widely shared across the sector.

The same key topics and messages are disseminated simultaneously through veterinarians and technical advisers, local supply chain points such as feed stores and retailers, printed posters and leaflets, and targeted social media. Each of these streams systematically refers to a small and stable set of agreed reference sources, such as EFSA, the European Commission, the participating countries, ECDC, and Chief Veterinary Officers, whose logos and endorsements are made visible on all materials. By ensuring that every channel redirects to the same authoritative platforms and by making alignment between institutions explicit, the strategy reduces the risk of contradictory advice, reinforces the legitimacy of the messages, and helps the target audiences become familiar with a limited number of trusted sources as their habitual reference for biosecurity guidance. This legitimacy will play a key role in the second year of the campaign.

**Veterinarians and technical advisers**

Veterinarians and technical advisers can act as the primary operational messengers of the campaign in year 1 by systematically integrating biosecurity communication into their routine professional contacts. During farm visits, they can share the core campaign messages and distribute the introductory brochure, using it as a brief support to explain why avian influenza enters farms and which first measures matter most.

They provide short explainer leaflets and simple visual posters illustrating transmission routes, which can be left in offices, changing rooms, and common areas. They place the first basic stickers at key transition points such as farm entrances and changing areas to showcase how avian flu is transmitted and where risk of spreading is heightened.

During routine veterinary contacts, they deliver two-to-five-minute targeted explanations focused on separation of birds, control of movements, and clean dirty separation. They also support or lead local meetings and training sessions using EFSA visuals to reinforce the same messages in a collective setting and direct farmers to the official website for further guidance. To reach backyard bird keepers, veterinarians also keep copies of the leaflets in their offices so that anyone visiting for other animals can take a brochure and access the same key messages.

**Other messengers and multipliers**

In Year 1, alongside veterinarians and technical advisers, a limited number of additional actors could contribute to establishing a shared understanding of transmission routes, priority measures, and the legitimacy of biosecurity.

**Farmers' associations** could support the campaign by endorsing and amplifying core messages through their existing communication channels (e.g. newsletters, websites, meetings) and any ad-hoc PR activity.

**Participating Member States** could act as key multipliers through PR and media activities, activating national networks and facilitating access to TV and radio programmes.

**Supply-chain actors**, particularly feed suppliers, local retailers, and collection points, could play an important role in Year 1 by ensuring that introductory visual materials (posters, brochures) are visible and accessible at everyday contact points.

At organisational level, **corporate biosecurity leads (head-office) and on-site farm managers** could act as internal multipliers by relaying and legitimising the campaign's core messages. **Website**

The EFSA website as well as the websites of each Member State's national competent authority could serve as the primary digital reference point for the campaign, offering direct and locally tailored access to key information. Posters, stickers, brochures, and social media messages will include a clear link or QR code directing users to a dedicated landing page hosted on the national authority's website (See section; Campaign structure, messengers, tools and tactics).

These national landing pages will present the core campaign messages, explanations of transmission routes, and priority measures such as bird separation and hygiene, all in a simple and accessible format. Content will be aligned with the EU-level guidance developed by EFSA but adapted to reflect national realities. The pages will also visibly display the joint endorsement of national Chief Veterinary Officers, relevant NGOs, and farmers' organizations,

reinforcing the consistency of messaging across authorities and the sector. The logos of the European commission and EFSA should be present throughout the information displayed.

To maintain coherence with the EU-wide campaign, each national landing page will include a clearly marked section linking to the EFSA website. This ensures that more engaged users, such as veterinarians, corporate managers, or advisers, can explore deeper content and benefit from the broader European perspective, while the national platform remains the main entry point for most users. Reference to EFSA's website would also provide a greater understanding to general users that the campaign and, consequently, the problem is EU-wide and should thus require a cohesive effort from all European citizens.

From this entry point, users will be able to access progressively more detailed guidance, practical checklists, videos, and printable tools under a section titled "How to go further with biosecurity." By anchoring the campaign on national platforms from the outset and linking to EFSA's central hub, Year 1 avoids message fragmentation, and lays the groundwork for the campaign's continuity in subsequent phases.

**Social media**

In Year 1, the social media campaign should be designed as a pure attention and redirection tool, not as a channel for detailed guidance. Its role is to attract the right audiences at the right moment and systematically bring them to the EFSA or local authority website.

When it comes to defining the targeting strategy of the social media campaign, the key behavioural barriers outlined in section 6.1 should be kept in mind.

In Year 1, the campaign should focus on countering scepticism. Taking into consideration the levers and information access points of the campaign's different target audiences, the approach should be twofold.

Semi-subsistence farmers should be the target of a broader, more general campaign. This is the hardest group to reach through conventional sources, whether private vets or health authorities, and henceforth a wide-spread social media campaign would increase the probability of the message being passed on isolated or remotely located to backyard poultry owners.

This group better responds to peers and human-guided messages rather than authority: henceforth assets targeted to them should use familiar imagery and local references to make the risk feel real and relatable. Emotional triggers, such as images of suffering animals (not limited to birds but also mammals usually found on farms, cats and dogs included) or the culling of the sick herd, would have to be used to overcome resistance to change and low self-efficacy. These would be paired with clear visual cues that highlight risky behaviours and motivate initial reflection. A hoped-for outcome of this approach would also be that of spillover effects: while the campaign would mainly target semi-subsistence farmers, emotionally

charged pictures are most likely to be shared amongst peers and thus hold the potential of reaching a wider audience of small family farms.

On top of open-access social media feeds, for this group, community Facebook groups would also be an important channel, where peer influence is strong and trust in local messengers, whether municipal vets or feed stores owners, is higher.

On the other hand, for younger farmers, corporate managers, and on-site workforce, who are more responsive to institutional authority and data-driven framing, the campaign should rely on official social media channels of agricultural ministries and veterinary services, whether on Instagram or LinkedIn. Here, outbreak visualisations and clear branding help reinforce legitimacy and signal long-term relevance. Relevant multipliers for this groups would also be associations and labour unions who could reposts the media assets on their own channels.

While segment-specific targeting is inherently complex, the strategy focuses on aligning each group's digital habits and trust dynamics with the appropriate tone, format and messenger, ensuring that the first point of contact leads to a consistent and credible source of information. This does not necessarily require producing fully differentiated social media content for each segment, but the design process should take into account the behavioural levers outlined in the situational analysis. A practical range of formats should be explored to accommodate different user preferences and contexts, while maintaining a cohesive and recognisable visual identity across all materials.

**Table 8. Year 1 Social media targeting strategy**

| Segment | Asset tailoring by segment |
|---|---|
| **S1 - Experienced 55+ family farmers** | - Use regional visualisations of avian flu outbreaks to localise the risk.<br>- Feature trusted local veterinarians in short videos or image posts.<br>- Disseminate content through local Facebook community groups where this audience is active.<br>- Show familiar, everyday careless habits (e.g. not washing hands, keeping the same clothes inside and out) and clearly illustrate how they contribute to avian flu spread. |
| **S2 - Less experienced 25+ family farmers** | - Use regional outbreak maps and data visualisations to show the scale of the issue.<br>- Clearly display the involvement of competent authorities (logos, quotes, co-branding) to reinforce legitimacy.<br>- Emphasise that avian flu is a long-term challenge, not a one-off event.<br>- Share content via official social media channels of agricultural ministries, veterinary services, and producer organizations.<br>- Include emotionally impactful images of suffering animals to reinforce the consequences of poor practices |
| **S3 – Semi-subsistence farmers** | - Use visuals that reflect familiar rural settings and small-scale poultry keeping.<br>- Include emotionally impactful images of sick or dying birds to trigger empathy. Can also extend to pet or other mammals often found in small farms.<br>- Feature local vets or para- veterinarians who are known in the community. |

| | |
|---|---|
| | - Target local Facebook groups and informal village pages where this audience is likely to engage.<br>- Focus efforts on countries with strong semi-subsistent farmers presence |
| **S4 – On-site operational workforce** | - Use short, clear visuals or videos showing incorrect vs. correct hygiene practices.<br>- Include emotionally impactful images of suffering animals to reinforce the consequences of poor practices.<br>- Disseminate content through employer-shared posts, supervisor accounts, or WhatsApp-forwardable formats. |
| **S5 – Managers of large firms** | - Share regional outbreak visualisations and risk dashboards.<br>- Clearly show the involvement of competent authorities and alignment with national and EU-level standards.<br>- Emphasise the long-term nature of the threat and the need for sustained compliance.<br>- Use official social media channels of ministries, EFSA, and corporate partners (e.g. LinkedIn, Twitter, Facebook). |

## 6.3 Year 2 - Activate adoption through trusted intermediaries

### 6.3.1 Targets and objectives

In Year 2, the strategy should shift from explaining why biosecurity matters to supporting how to implement priority measures in everyday practice. Building on the Year 1 focus on transmission logic, legitimacy, and prioritisation, Year 2 can concentrate on translating a small set of flagship measures into concrete routines that can be applied correctly and consistently on farms. The objective could therefore be to reduce the gap between intention and execution by providing practical, step by step guidance on how to control access, change and clean at entry, separate clean and dirty areas, separate birds, and detect and report early signs.

To achieve this, Year 2 can combine hands on delivery with systematic digital pre-exposure. For example, short training videos and on-site demonstrations delivered by veterinarians, technical advisers, and integrators can demonstrate how measures are implemented in real farm conditions, address frequent mistakes, and illustrate feasible solutions under different constraints. In parallel, social media and the campaign website are used to pre-seed the key measures before trainings take place, so that farmers are already familiar with the routines when they attend a session or receive a visit. Short video extracts, simple how-to visuals, and recurring posts present each priority measure in isolation and repeatedly redirect audiences to the full training materials hosted on the EFSA platform.

At the same time, the campaign can make use of a new set of instructional stickers and visual cues placed at critical points such as farm entrances, changing areas, and poultry houses, prompting key actions such as washing hands, changing clothes, controlling visitors, and isolating sick birds at the moment of decision. By combining digital awareness, practical demonstrations, and physical cues, Year 2 aims to standardise correct implementation, reduce variability in practice, and embed priority measures into daily workflows, ensuring that when training is delivered, the measures are not new concepts but already recognised routines to be adopted and sustained.

### 6.3.2 Topics and key messages

In Year 2, the strategy proposes to move from explaining why biosecurity matters to demonstrating how to implement priority measures consistently and correctly. The messages should therefore be designed around the behavioural levers identified in the situational analysis: advice delivered by trusted intermediaries, clear demonstration of what works and why it matters, reinforcement through social norms and community influence, promotion of measures that are both effective and feasible, micro-learning and low-friction enablement tools, and repeated reinforcement beyond outbreak periods. By combining these levers across training, on-site demonstrations, stickers, and digital channels, Year 2 could ensures that farmers are equipped with both the knowledge and practical cues to adopt and sustain core biosecurity behaviours.

**Table 9. Core messages of year 2 campaign by topic**

| Core Topic | Core Messages (lever-based) | Possible communication Formats / Channels |
|---|---|---|
| 1. A selection of priority measures | - Repetition of Year 1 priority measures list with introduction to year 2 planning of more detailed instructions.<br><br>- Find here the priority list of the EFSA (name other actors) and more facilitating information on how to implement biosecurity measures in your own work place.<br><br>- "Look out for how you might be doing these wrong" type of message on social media | Newsletters, website banner, social media post. |
| 2. Controlling access to the farm | - Only allow people and vehicles when necessary, this is a simple step that greatly reduces risk. (Efficacy & Feasibility)<br><br>- Veterinarians and trusted advisers can help you set up practical access routines. (Trusted intermediaries)<br><br>- Farmers who track and manage visits protect their flocks and show others how it's done. (Social norms) | Providing stickers through farm visits to be placed at farm entrances, training videos depicting the link between access control and transmission, social media clips, brochures about all selected measures |
| 3. Changing and cleaning at entry | Changing clothes and footwear and washing hands is an easy routine that prevents most introductions. (Feasibility & Efficacy)<br><br>Follow examples from neighbouring farms – proven routines work. (Social norms) | On-site demonstrations, training videos (shared on social media), stickers at changing areas, visual step-by-step guides in brochure. |

| | | |
|---|---|---|
| 4. Separating clean and dirty areas | - Keeping clean areas free from contamination is straightforward and protects your entire flock. (Feasibility & Efficacy)<br><br>- Farms using clear pathways reduce mistakes and set the standard for peers. (Social norms) | Posters in workspaces, visual markers/stickers on doors, demonstrations, social media infographics |
| 5. Separating birds | - Separate sick, new, or different species immediately – a small step with big impact. (Efficacy & Feasibility)<br><br>Farmers who isolate birds early prevent large losses, others can learn from your example. (Social norms & Peer influence)<br><br>Use stickers and visuals to remind staff and visitors at critical points. (Micro-learning & Enablement) | Demonstrations during visits, instructional stickers in coops placed during on-site visits, mobile-friendly video clips, social media posts |
| 5. Observing and reporting unusual signs | - Check birds daily and report unusual deaths or symptoms immediately – it keeps your flock safe and healthy. (Efficacy & Feasibility)<br><br>- Use stickers to help you staff stop signs of contamination<br><br>- Reporting early is a trusted practice supported by veterinarians and authorities. (Trusted intermediaries) | Posters in high-traffic areas, stickers as daily reminders, video tutorials, social media posts highlighting symptoms. |

Note: for each communication strand a clear website link should be displayed to bring visitors to find more information. It is crucial that this link does not bring visitors to a generic page to ensure the links are used further.

### 6.3.3 Campaign formats, channels and actions

**Veterinarians and technical advisers**

Also in Year 2, veterinarians and technical advisers serve as the first operational messengers of the campaign, although their role now becomes twofold: on the one hand, they remain key disseminators of communication materials; on the other, they also become the primary source of practical guidance. Their visits shift from awareness-raising to hands-on support, helping farmers and workers implement specific measures in their own settings. Indeed, they should provide on-site demonstrations, showing how to set up footbaths, separate birds, or organise clean and dirty zones using the campaign materials. In addition, on top of the distribution of starter packs containing the main stickers and labels, they offer advice on where and how to place stickers and posters, ensuring that prompts are positioned at the right decision points to support habit formation. QR codes on these materials link directly to the "How to go further with biosecurity" section of the campaign website, allowing users to access more detailed guidance as needed. Finally, during seasonal visits, veterinarians and advisers should use simple checklists to walk through key measures with farmers, helping them prioritise what to implement first. This practical, face-to-face support helps reduce psychological and logistical

barriers, reinforces the legitimacy of the campaign, and ensures that materials are not only distributed but actively embedded into daily routines.

To encourage sustained engagement, the campaign could also include incentives and recognition mechanisms for veterinarians and technical advisers. These could involve accredited continuing professional development modules linked to the campaign, allowing professionals to gain formal training credits while strengthening their advisory role on biosecurity. Participation should also be supported through ready to use communication kits, short guidance notes, and micro learning resources that help reduce the time burden associated with explaining measures during visits. Recognition schemes, such as highlighting participating practices through professional associations, national veterinary networks, or sector events, could further reinforce professional status and visibility. Where feasible, collaboration with national authorities and professional bodies could explore financial or organisational support, for example, small service fees for structured seasonal check-ups or inclusion of biosecurity advisory tasks within existing animal health programmes. This combination of professional recognition, practical facilitation, and alignment with existing workflows could help position biosecurity advice as a core part of routine veterinary and technical services rather than an additional task.

**Other messengers and multipliers**

In Year 2, alongside veterinarians and technical advisers, several other actors could play a key role in supporting the practical adoption of priority measures using the campaign's core tools and engaging in PR activities.

**Farmers' associations** could help reinforce peer learning by organising or hosting on-site and online demonstrations and field visits, by distributing/posting brochures and posters that showcase good practice, and by keeping the topic relevant through the online distribution of informative newsletters. Their involvement through PR activities could support social norm building and helps normalise adoption within farming communities.

**Supply chain actors**, such as feed suppliers and hatcheries, could contribute by embedding campaign materials into their routine interactions e.g., delivering stickers and checklists during farm visits, or reinforcing hygiene protocols through visual markers at delivery points. For small-scale farmers, **feed store owners** can promote biosecurity kits and explain how to use stickers and posters at the point of sale.

**Participating Member States** could continue to act as key multipliers also in Year 2 ensuring consistency in PR and media activities, maintaining relationships with national networks and rooting for a streamlined access to TV and radio programmes.

**Labour unions and crew leaders** could be particularly relevant for the on-site workforce, helping to integrate visual prompts such as stickers and posters into daily routines and reinforcing key behaviours during safety briefings.

**NGOs**[2] would continue to support the campaign with PR activities and by distributing materials in hard-to-reach areas and reinforcing messages with evidence-based content, particularly through mobile-friendly videos and infographics.

**Social media**

In Year 2, social media continues to play a supporting role, shifting communication focus from broad awareness to reinforcing specific practices. The campaign adopts a seasonal burst approach, with each wave focusing on one priority behaviour at a time. These bursts are designed to coincide with key risk periods and are structured around short, high-visibility posts that link directly to the relevant "How to go further with biosecurity" page on the campaign website. Short videos hosted on the website are promoted through social media to demonstrate how to carry out specific measures, such as setting up a footbath or separating sick birds. These clips serve as micro-learning tools, helping to reduce the psychological cost of adoption and reinforce feasibility.

Assuming that awareness levels have now been broadly harmonised across most segments (considering that some backyard bird keepers will generally be aware), the content of the social media campaign no longer needs to be differentiated. However, distribution strategies should still vary by segment and remain sensitive to the specific habits, trust dynamics and preferred channels of each audience. The following recommendations should continue to guide how content is delivered to ensure it reaches the right people in the right spaces, even if the messaging itself remains consistent.

**Table 10. Year 2 Social media targeting strategy**

| Segment | Asset tailoring by segment |
|---|---|
| **S1 - Experienced 55+ family farmers** | - Use social norms to depict new ways of doing things to attract attention to the content<br>- Disseminate content through local Facebook community groups where this audience is active. |
| **S2 - Less experienced 25+ family farmers** | - Trigger their will to learn new ways and novelty<br>- Provide them with practical knowledge<br>- Share content via official social media channels of agricultural ministries, veterinary services, and producer organizations. |
| **S3 – Semi-subsistence farmers** | - Use an animal welfare angle that points to minimising the spread of sickness to other birds/species<br>- Target local Facebook groups and informal village pages where this audience is likely to engage.<br>- Focus on key countries |
| **S4 – On-site operational workforce** | - Disseminate content through employer-shared posts, supervisor accounts, or WhatsApp-forwardable formats.<br>- Use labour unions to disseminate information using an angle that aims to protect workers safety and job safety |
| **S5 – Managers of large firms** | - Focus on acting to avoid losses; Economic losses, highlight that one can avoid the risk of high scale culling.<br>- Use official social media channels of ministries, EFSA, and corporate partners (e.g. LinkedIn, Twitter, Facebook). |

## Website

In this structure, the campaign website serves as the central reference point for the campaign, offering a clear and accessible overview of the core measures and their rationale. It hosts the full set of short training videos, which are promoted through social media and used as micro-

learning tools to demonstrate how to carry out specific actions, such as setting up a footbath or separating sick birds.

To ensure accessibility across all Member States, these videos should also be made available on the websites of national competent authorities, translated or adapted into local languages. As described at the start of the strategy chapter, the websites should be linked to the EFSA website and vice-versa to ensure visitors make the link between the organisations and seen the messages as consistent and legitimate. These national websites function as the operational backbone of the campaign, providing practical tools tailored to local contexts. They host a downloadable starter pack with core stickers and labels, a simple separation guide with diagrams, an installation guide for clean and dirty zones, and a one-page seasonal checklist. Together, the EFSA and national campaign websites ensure that the campaign remains both coherent and actionable, with EFSA providing the overarching framework and national authorities delivering locally adapted support in the appropriate language and context.

**SMS reminders**

To complement other channels, Year 2 introduces SMS reminders as a low-friction tool to reinforce seasonal vigilance. One or two short messages are sent before the start of the high-risk period, alerting recipients of transmissions risks and the effectiveness of biosecurity measures. Simultaneously the SMS direct recipients towards the campaign website(s). The SMS alerts reinforce a norm/culture of preparedness and habituates the recipients to this type of messaging. The tone is simple and action-oriented, reinforcing the priority list of measures. This one can also set the scene for the next years' alerts planned.

## 6.4 Year 3 - Maintain routines and prevent relapse

### 6.4.1 Targets and objectives

Year 3 could focus on maintaining adoption over time by reinforcing a small set of core routines and embedding biosecurity as a professional norm. The strategy can therefore shift from introducing new practices to sustaining what has already been adopted, with an emphasis on preventing erosion and preparing for the high-risk season. During the year the campaign could concentrate on informing farmers about the need to reinforce behaviours to turn them into routines. It will therefore focus on what tends to slip, such as basic hygiene measures and support seasonal vigilance through timely, low-effort reinforcement.

This is done through a combination of light-touch physical prompts, seasonal digital reminders, and brief in-person reinforcement. Veterinarians and technical advisers can continue to play a central role, delivering one short seasonal conversation per farm focused on one or two key priorities. These visits are supported by the distribution of an annual seasonal reminder pack, which includes a one-page checklist on hygiene measures, a self-check form, adoption training reminders and a short seasonal risk update. Only missing or worn critical stickers are replaced, maintaining visual continuity and avoiding overload.

The communication activities for the final year of the campaign could be split into four phases in order to sequence the yearly routine. The table below provides an example of a possible sequence that can be applied to the proposed strategy and its final year.

**Table 11 Year 3 options for seasonal sequencing**

| Phase | Timing | Objective |
|---|---|---|
| **1. Preparation** | July to August | Prepare farms before the high-risk season begins. Provide reminders on how to implement key measures. |
| **2. Heightened vigilance** | September to February | Reduce risk during the main high-risk periods linked to wild bird migration and winter conditions. |
| **3. Stabilisation** | March to April | Maintain caution while farms restart production cycles and environmental virus survival begins to decline. |
| **4. Low-risk maintenance** | May to June | Support good practices during lower risk months and outdoor access. |

Based on this sequencing the communication activities can be concentrated into four seasonal bursts, timed to encompass the full risk cycle. The communication activities can serve as reminders, pointing users to the updated seasonal content online and reinforcing the message that small lapses can lead to large risks. The website(s)' banner should be updated periodically with seasonal notes and examples of good practice, maintaining its role as the central reference point. By combining seasonal digital reinforcement, light-touch in-person guidance, and persistent visual cues, the final year can aim to keep core routines stable, prevent backsliding, and ensure that biosecurity remains embedded in the daily rhythm of farm life.

### 6.4.2 Topics and key messages

Year 3 should focus on stability, seasonal reinforcement, and routine continuity rather than introducing new content or measures. Having established the logic, legitimacy, and practical implementation of biosecurity in Years 1 and 2, the third year of the campaign is designed to prevent erosion of practices over time and across production cycles. The communication strategy can therefore concentrate on maintaining a small core of visible, feasible routines, aligned with seasonal risk peaks and business cycles, and supported through light but regular reminders. Messages emphasise continuity, preparedness, and collective normalisation of good practice, using simple seasonal prompts, trusted professional contacts, and consistent digital reinforcement to ensure that biosecurity remains embedded in everyday farm routines without increasing complexity or burden. The following table depicts this logic through three key topics covered through the year.

**Table 12. Core messages of year 3 campaign by topic**

| Core Topic | Core Messages (lever-based) | Communication Formats / Channels |
|---|---|---|
| 1. What tends to slip over time **Preparation** | - Small lapses undo months of effort (risk awareness)<br>- One seasonal check is enough to stay on track (feasibility)<br>- Most farms that avoid outbreaks stick to the basics (Social norms) | Seasonal reminder pack, one-page self-check form, short seasonal vet/adviser visit, social media reminders, posters in workspaces, website updates, mapping of seasons. |

| | | |
|---|---|---|
| 2. How to prepare for the coming high-risk season **Heightened vigilance** | - One seasonal check prevents backsliding (feasibility)<br>- Preparing early protects your flock and your income (efficacy)<br>- Everyone is getting ready: don't be the exception (social norms) | Annual seasonal reminder pack, short seasonal risk update note, social media burst campaign, QR codes linking to seasonal website page, vet/adviser seasonal visits, SMS reminders. |
| 3. How to properly implement biosecurity measures **Stabilisation** | - Refresher course on the key measures<br>- Reminder of where the materials are on the campaign website(s).<br>- Reminders that new employees need to be on-boarded to the measures | Annual seasonal reminder pack, social media burst campaign, QR codes linking to seasonal website page, vet/adviser seasonal visits. |
| 4. How to keep a small core of routines stable **Low risk maintenance** | - Keep the basics right every season (professional norm)<br>- Routines are easier to maintain than to restart (feasibility)<br>- Trusted advisers help you stay on track (trusted intermediaries)<br>- Timeline mapping of efforts that can be made throughout the seasons | One-page seasonal checklist, sticker replacement only where needed, social media reminders, website self-check tools. |

### 6.4.3 Campaign formats, channels and actions

**Veterinarians and technical advisers**

In Year 3, veterinarians and technical advisers can continue to serve as the campaign's most trusted and consistent messengers. Their role shifts from supporting adoption to reinforcing stability, with a focus on maintaining core routines through light-touch, seasonal engagement. Each farm receives one short seasonal conversation, typically during a routine health or advisory visit, focused on one or two key priorities that are most at risk of slipping. These conversations are not formal training sessions but brief, practical check-ins that help farmers reflect on their current practices and identify any small adjustments needed ahead of the high-risk season.

To support these visits, veterinarians and advisers could distribute an annual seasonal reminder pack. This includes a one-page checklist on bird separation, a self-check form to help farmers assess their current routines, and a short seasonal risk update note. These materials are designed to be quick to use and easy to integrate into existing workflows. QR codes printed on all materials link directly to the updated seasonal section of the national campaign website, where users can access further guidance, good practice examples, and short refresher videos in their local language. Only missing or worn critical stickers are replaced, reinforcing continuity and avoiding unnecessary clutter. This approach ensures that biosecurity remains visible and embedded in the daily rhythm of farm life, without adding unnecessary burden.

**Other messengers and multipliers**

While veterinarians and technical advisers would remain central, other messengers could continue to play an important role in Year 3 by reinforcing campaign visibility and supporting routine maintenance.

**Farmers' associations** could help sustain peer norms by sharing seasonal reminders through newsletters, WhatsApp groups and local meetings. They can also display campaign posters in their offices or distribute seasonal materials during PR events or member visits.

**Supply chain actors**, such as feed suppliers and hatcheries, could support the campaign by maintaining visible prompts at key contact points. Feed store owners, in particular, can display posters and stickers in their shops and continue to offer biosecurity kits or seasonal checklists at the counter. For corporate farms, hatcheries and processors can reinforce seasonal routines during audits or logistics coordination, ensuring that biosecurity remains part of standard operating procedures.

**Labour unions and crew leaders** could keep playing a key role in reaching the on-site workforce. They can help distribute seasonal checklists and symptom alert stickers during safety briefings and ensure that biosecurity remains part of workplace routines. Their involvement would reinforce the legitimacy of the campaign and supports continued compliance through peer accountability.

At organisational level, **corporate biosecurity leads (head-office)** could act as internal multipliers by ensuring implementation of biosecurity measures is institutionalised through the definition of internal biosecurity policies.

**Participating Member States** could maintain their role in rooting for a streamlined access to TV and radio programmes, especially to ensure coverage during high-risk season.

**NGOs**[2] could continue to support the campaign by helping to distribute seasonal materials in hard-to-reach areas and by reinforcing messages through community networks. In some contexts, they may also help translate or adapt materials for specific groups, ensuring that seasonal reminders remain accessible and relevant.

To support the use of SMS reminders (see below), these same actors, particularly local veterinary services, para-veterinarians, NGOs and feed store owners, are well placed to help collect or verify phone numbers of difficult-to-reach backyard farmers and birdkeepers. This can be done informally during visits, product sales or community events, ensuring that contact lists are built in a respectful and privacy-compliant manner. These networks are essential for extending the campaign's reach and ensuring that seasonal materials and reminders are delivered to all relevant audiences, including those who are not formally captured in official systems.

### Social media

In Year 3, social media can continue to support the campaign through a set focused seasonal reminder burst, launched before the start of the high-risk period and during the high-risk period. The aim should not be to introduce a lot of new content, but to reinforce the importance of maintaining core routines and to prompt users to revisit the seasonal guidance. Posts are short, familiar and visually consistent with previous years, using the same campaign identity and tone. Each post highlights one key message and links directly to the updated seasonal page on the national campaign website.

The four seasonal bursts are timed to coincide with the periods when farmers and workers are most likely to be preparing for increased risk, ensuring that messages are relevant and timely. The content is not differentiated by segment (special attention can be given to on-site operational workers for messages on new employees), but distribution remains tailored: for example, community Facebook groups are used to reach small-scale farmers, while official ministry channels and LinkedIn are used to reach corporate managers.

**Website**

As mentioned in the overall campaign structure, the campaign website remain the operational backbone of the campaign, offering practical tools that support seasonal reinforcement. Each page hosts a locally adapted version of the seasonal content, aligned with the overarching EFSA framework but tailored to national language and context. These pages are updated at the start of the high-risk season with a short risk note, examples of good practice, and links to the full seasonal reminder pack.

The reminder pack could include a one-page separation checklist focused on isolating sick birds and preventing contact with wild birds, a one-page self-check form to help users assess their current routines, and a short seasonal risk update note. These materials are designed to be quick to use, easy to print, and directly aligned with the messages delivered by veterinarians, advisers and social media. The website also hosts short refresher videos that demonstrate key routines in real farm settings, helping to reinforce feasibility and reduce the psychological cost of maintaining good practices. This decentralised structure ensures that guidance remains accessible, locally relevant and consistent with the broader campaign framework.

**SMS reminders**

To complement other channels, Year 3 could continue to use SMS alerts as reminders to reinforce seasonal vigilance. One or two short alerts could be sent before the start of the high-risk period, reminding recipients to review their routines and directing them to the updated seasonal page of the campaign website. The tone is simple and action-oriented, reinforcing the idea that one seasonal check is enough to stay on track.

# 7 Evaluation framework

## 7.1 Introduction

This chapter presents a proposal for an evaluation framework underpinning the multi-annual communication campaign on avian influenza. The framework is built on an intervention logic, which serves as the analytical foundation for understanding how the campaign is planning to produce its intended effects among target audiences and ultimately contribute to the overarching policy goal of reducing the spread of avian influenza in the European Union. In other words, the intervention logic describes how the campaign's resources are transformed into awareness raising activities, how these activities generate tangible outputs, and how these outputs progressively lead to intermediate results and long-term impacts.

In addition to describing the mechanism of change, this chapter introduces the key performance indicators derived from the intervention logic, which offer a systematic approach for assessing the campaign's effectiveness. The associated tools and methods for data collection and analysis are also briefly presented, as they will underpin the continuous monitoring and evaluation of the campaign throughout its multi-annual duration.

## 7.2 Intervention logic

The intervention logic (Baehler, 2007) forms the foundation of the evaluation framework, as it clarifies how the campaign is expected to generate change and how progress should be

assessed across its successive stages. It is developed by starting from the overarching goal, namely reducing the spread of bird flu in Europe, and then working backwards until the shorter-term changes that must occur for this goal to be achievable are identified. By breaking the long-term impact down into specific and operational objectives, the intervention logic shows how each element of the campaign contributes to the next step in the chain. This structured breakdown provides a clear basis for selecting appropriate indicators at each stage of the process and for assessing progress in a coherent and meaningful way.

The logic begins with the operational objective, which is to ensure that all identified target audiences are effectively reached through a coordinated, multiannual communication effort. When this condition is met, the first outputs of the campaign emerge: audiences are exposed to the messages, materials and guidance designed for them. At this stage, the evaluation is concerned only with confirming that contact has taken place and to measure the extent of this contact. Exposure shows that audiences have had the opportunity to encounter the campaign, but it does not yet signal any shift in understanding or behaviour.

The next link in the chain concerns the intermediate results, which capture the understanding that must occur before any movement toward the specific objectives is possible. Exposure becomes meaningful only when audiences notice the messages, retain them, understand their content and consider them credible, relevant and trustworthy. In other words, the campaign must first secure attention, comprehension and perceived legitimacy. These preconditions are essential because awareness depends not simply on receiving information but on believing that it is authoritative, feasible and aligned with the realities of farm management.

Once this understanding is in place, the logic anticipates results at the level of individuals. This is where the campaign's specific objectives begin to materialise:

- A clearer and more widely shared understanding of how avian influenza reaches farms signals progress toward the first specific objective.
- Increased trust in veterinarians, institutions and other intermediaries, combined with greater confidence in the recommended measures, reflects progress toward the second.
- A growing sense that biosecurity routines form part of standard professional practice indicates movement toward the third objective, which focuses on embedding biosecurity into everyday farm management.

These changes represent shifts in knowledge, attitudes, trust and intentions, and together they provide the behavioural basis required for the consistent uptake of protective measures.

The final link in the chain concerns the long-term impacts. As biosecurity routines become more consistently applied and stabilise in daily farm practice, the routes through which avian influenza can enter or circulate are progressively reduced. Over time, this sustained improvement contributes to a decrease in avian flu cases in the EU, even when case numbers may fluctuate with reporting intensity. It becomes then relevant to verify, at the same time, that tighter containment at farm level limits opportunities for viral replication and cross-species transmission, helping reduce the emergence of new variants and spillover to mammals and humans.

Although many external factors shape the epidemiological landscape, the intervention logic isolates the campaign's contribution. By strengthening the information foundations that

restrict exposure, reduce farm-to-farm spread and minimise viral amplification, the campaign supports the conditions required for both fewer cases and lower mutation and spillover risks.

The framework presented in this chapter is aligned with both the European Commission's indicator framework for communication campaigns[3] and the International Association for the Measurement and Evaluation of Communications (AMEC) principles (AMEC, 2025).

[3] dg-comm-communication-network-indicators_en.pdf

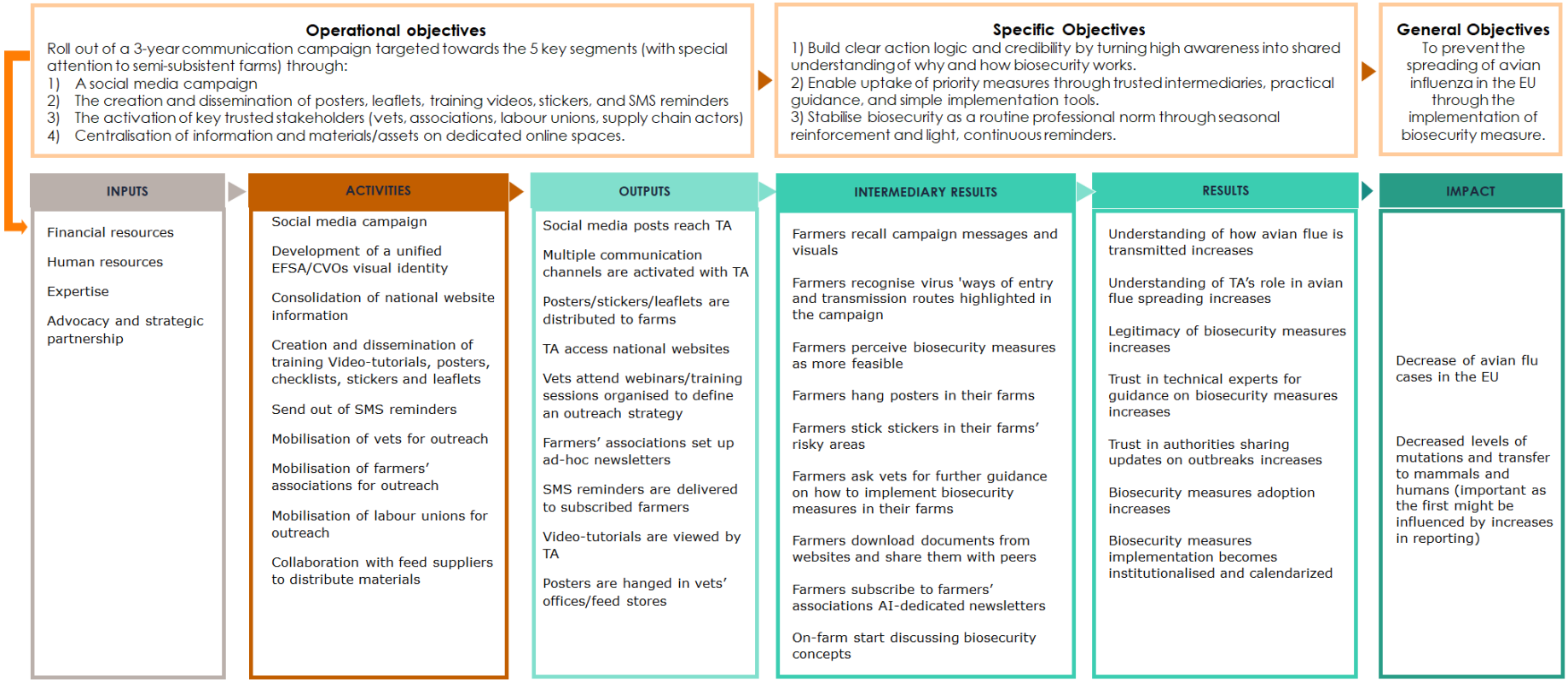


**Figure 9. Avian flu campaign's intervention logic**

## 7.3 Key Performance Indicators (KPIs)

The KPI framework mirrors the structure of the intervention logic. It begins with the campaign's overarching aim of reducing the spread of bird flu in Europe and works backwards to identify the short-term and intermediate changes that must occur for this outcome to be achievable. Each stage of this chain specifies the type of effect the campaign is expected to generate and the evidence needed to measure them. In this way, the framework is built to capture progress in a manner that reflects how change actually unfolds and how it can realistically be influenced over several years.

All KPIs are measured annually. This is essential, as the value of the framework lies not in isolated measurements but in tracking whether change strengthens, plateaus or reverses over time. Year-on-year comparison is particularly important for result and impact indicators, where benchmarking against previous cycles shows whether behavioural and epidemiological shifts are being sustained. Each annual dataset is used to adjust the following year's activities, enabling the campaign to refine its content, targeting and resourcing on the basis of evidence rather than assumption.

The framework moves from short-term outputs to long-term impacts. At output level, the question is simply whether the campaign has reached the intended audiences. Indicators therefore focus on visibility, coverage and exposure. For media components, this includes standard efficiency measures such as cost per thousand impressions, cost per click and engagement levels, which together indicate whether delivery is improving and whether resources are being used effectively. These data come mainly from platform analytics and administrative distribution records.

At the intermediate results stage, the focus shifts to the cognitive processes that must occur before behaviour can change. Indicators capture whether audiences notice and remember the messages, understand them, and consider them credible and relevant. Surveys provide the primary evidence, supported by inspections in contexts where the placement of physical materials affects repeated exposure.

At the result stage, the framework assesses whether the campaign's specific objectives are being met. Indicators measure changes in knowledge, trust, attitudes and reported behaviour among semi-subsistence farmers and other groups. Surveys capture shifts in understanding and acceptance of recommended measures, while inspections verify whether these shifts are visible in practice. Epidemiological data are included where early risk-related changes can be detected.

At the impact stage, the framework examines long-term epidemiological outcomes, including changes in incidence, spatial spread and the genetic evolution of avian influenza. These indicators lie beyond the campaign's direct control but provide the context against which behavioural improvements can be interpreted.

Across all stages, the value of the framework lies in the cumulative evidence it produces. Systematic year-on-year comparison strengthens the evaluation's ability to determine whether observed changes are connected to the campaign and whether they are being maintained. This approach supports an evidence-driven campaign that evolves over time, improves both effectiveness and efficiency, and remains aligned with its long-term objectives.

Table 13 below presents the full set of suggested key performance indicators (KPIs) that may be used to monitor the effectiveness of the multiannual avian influenza communication campaign. For each evaluation phase defined in the intervention logic, several KPIs are proposed, in line with the explanations provided above. However, this table should be understood as a menu of monitoring options rather than a prescriptive checklist. The selection of KPIs should be tailored to the specific campaign activities implemented, as well as to the resources available for data collection and metric calculation.

**Table 13. Evaluation key performance indicators**

| Evaluation Phase | KPIs | Source |
|---|---|---|
| **Output** | Number of impressions among the target audience (TA)<br>Unique accounts reached in the TA<br>Number of social media video views<br>Reach of paid and organic posts<br>Cost per thousand impressions (CPM)<br>Cost per click (CPC)<br>Click-through rate (CTR)<br>Cost per engaged user<br>Engagement rate (total interactions divided by reach)<br>Cost per engagement (CPE)<br>View-through rate (VTR)<br>Cost per completed video view (CPCV)<br>Share of impressions served to the TA versus total impressions<br>Cost-efficiency ratio compared with benchmark values (value for money assessment)<br>Spend-delivery ratio (media budget delivered relative to planned delivery) | Social media metrics |
| | Website unique visitors to campaign pages<br>Number of SMS reminders successfully delivered<br>Number of new farmers' associations' newsletters subscribers<br>Share of TA touchpoints covered<br>Materials dispatched to farms (quantity)<br>Farms covered by physical distribution (#)<br>Number of spots aired (radio/TV)<br>Number of vets registering to webinars (share of tot vets contacted)<br>Unique vets who attended live or watched the recording (≥ X% watched).<br>Count of campaign-related newsletters sent by farmers associations<br>Number of TA recipients on the distribution list<br>Count of vet offices/feed stores provided with posters | Media metrics (non-social) |
| **Intermediary Results** | % of farmers who recall campaign messages<br>% of farmers who recognise campaign visuals<br>% of farmers correctly identifying malpractices featured in the campaign<br>% of farmers rating promoted measures as feasible<br>% of farmers reporting discussion with vets about biosecurity<br>% of farmers reporting internal team discussions on biosecurity<br>% of farm workers reporting biosecurity discussions on farms | Surveys |

| | | |
|---|---|---|
| | % of farms where posters are visibly displayed<br>% of farms with stickers displayed in designated risky zones | Inspections |
| | Count of new TA email addresses opted-in to farmers' associations newsletters | Media metrics |
| **Results** | % of farmers who correctly identify how avian flu is transmitted<br>% of farmers who recognise their role in spreading or preventing avian flu<br>% of farmers perceiving biosecurity measures as legitimate<br>% of farmers believing in the legitimacy of the messengers<br>% of farmers reporting high trust in technical experts for biosecurity guidance<br>% of farmers reporting trust in authorities sharing outbreak updates<br>% of farmers adopting at least one recommended biosecurity measure (self-reported)<br>% of farmers reporting that biosecurity routines are scheduled or regular<br>% of farmers reporting that biosecurity practices are embedded in farm routines | Surveys |
| | % of farms with newly adopted biosecurity measures observed during inspections<br>% of farms with documented or calendarised biosecurity routines<br>% of farms demonstrating sustained implementation of key measures | Inspections |
| **Impact** | Reduction in avian flu cases reported in Europe<br>Reduction in avian flu outbreaks across affected regions<br>Reduction in casualties in avian flu outbreaks<br>Change in transmission indicators associated with on-farm biosecurity improvements<br>Decrease in the rate of emergence of new avian flu strains<br>Decrease in genetic diversity of circulating avian flu variants<br>Slower mutation frequency observed in surveillance samples | Epidemiological data |

## 7.4 Data collection

The data collection approach for this multiannual communication campaign is built to reflect the intervention logic and to support the KPI framework that derives from it. It combines the evidence required to monitor the full sequence of change, from early exposure to long term epidemiological outcomes. A full baseline must be collected before the start of Year 1. This establishes the reference values for all result and impact indicators and makes it possible to calculate year on year change at the end of Year 2 and change against baseline at the end of Year 3. Consistency in measurement across all three years is essential, as it allows the evaluation to determine whether patterns are strengthening, weakening or shifting and whether adjustments in the following year's activity are required.

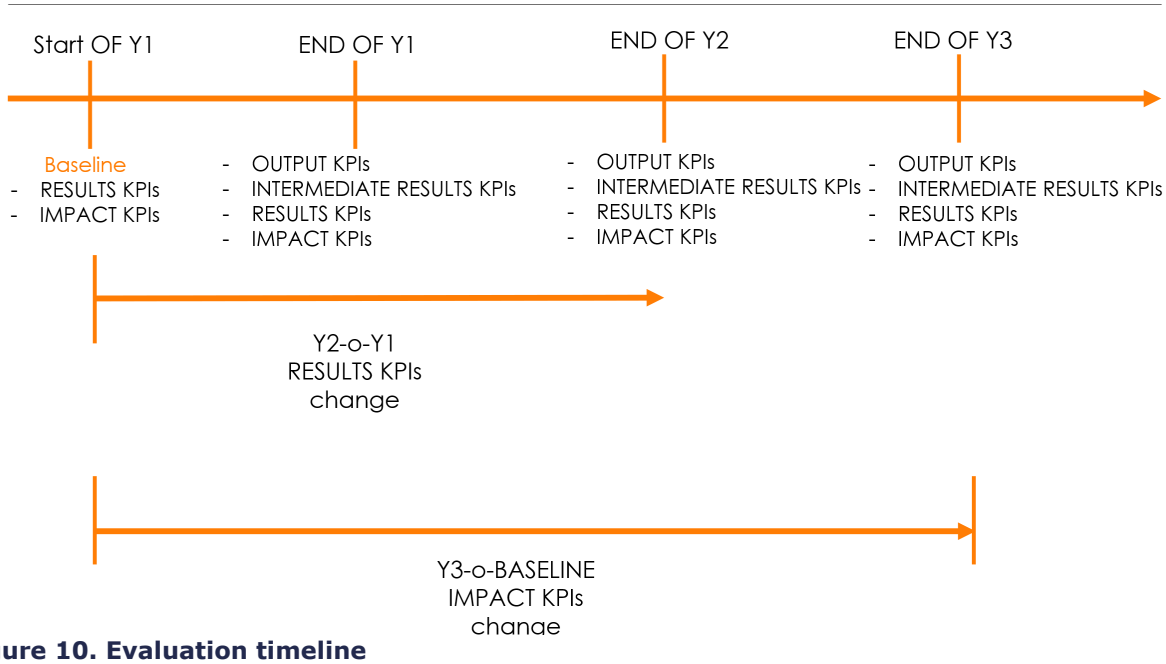


**Figure 10. Evaluation timeline**

Data collection is organised to ensure that at the end of each year the campaign can report on output indicators, intermediate results, results and impacts. Outputs and intermediate results rely mainly on social media, non-digital channels, surveys and inspections, while impact indicators draw primarily from surveillance and epidemiological datasets. The sections below describe the role of each source and how they relate to the specific audiences the campaign aims to reach.

### Social media metrics

Social media metrics capture both the scale and the quality of the campaign's digital presence. They bring together indicators of reach, such as impressions, unique accounts reached and video views, with engagement and efficiency measures, including click-through-rate, engagement rate, cost per click etc. Combined, they show whether the content reaches the right audiences, attracts attention and while it manages to do so at a reasonable cost.

Data are collected throughout each campaign cycle.

### Media metrics (non-social)

Media metrics (non-social) provide insight into how the campaign circulates beyond digital platforms. They capture traffic to campaign pages, reach achieved by radio and TV programmes, delivery of SMS reminders, subscriptions to sector newsletters and the extent of coverage across relevant touchpoints. They also record physical distribution on farms, engagement from veterinarians through webinars and the visibility of posters in practices and feed stores. These data help determine whether the content is reaching a sizeable and receptive audience.

### Survey data

Surveys provide the principal evidence on how each target audience interprets and responds to the campaign. They capture levels of awareness, comprehension, credibility and reported behaviour across experienced and less experienced family farmers, semi-subsistence farmers, managers of large firms, and the on-site workforce. A baseline survey is conducted before the campaign begins to establish initial values for all result indicators. A similar questionnaire is then repeated at the end of each year. This allows the evaluation to track changes in understanding, trust and adoption over time and to measure the Year 2 minus Year 1 difference and the Year 3 minus baseline difference.

Following the baseline survey the surveys should add a large set of questions pertaining to recall and the assessment of the assets. As such they should measure how well the assets fared when it comes communicating clearly. The periodicity of the surveys and assessment of assets should allow the creative team to gather feedback on the quality of the assets and to improve the content and visual look of the assets.

The surveys would need to target a sub-set of Member States that have agreed to participate in the campaign. Ideally the selected Member States cover a good representation of the different types of farm compositions for instance including Member States with high number of semi-subsistent farmers but also some with low number of such farmers.

**Inspection data**

Inspection data provide concrete evidence of whether the campaign's recommended practices are visible and used on farms. They are especially relevant for audiences whose behaviours can only be assessed in situ, such as semi-subsistence farms, family farms and the operational workforce of large enterprises. Using structured observation tools, inspectors record whether materials are displayed in the correct locations and whether key routines, such as clean and dirty separation, visitor control or bird separation, are being applied. Inspection data complement survey findings by observing real behaviour rather than relying on self-reporting. Collected annually, they allow the evaluation to document whether changes in practice appear in Year 1, increase in Year 2 and stabilise in Year 3, and whether these changes differ by audience type.

**Epidemiological data**

Epidemiological datasets place the campaign within the broader disease context and provide the evidence required for impact indicators. They include information on confirmed avian influenza cases in poultry, detections in wild birds, the geographical spread of outbreaks and data on the emergence and circulation of new variants, including sequencing and mutation trends. These data can be sourced from EU-level or national surveillance programmes[4] operated by competent authorities in each Member State. A baseline of epidemiological indicators can be taken at the start of the campaign. These data can be then compared with Year 3 values to assess change against baseline. Although many factors beyond the campaign contribute to epidemiological outcomes, these indicators could help determine whether

[4] For example, Italy operates a national surveillance programme that integrates risk-based active surveillance with passive early detection in line with Annex II of Delegated Regulation (EU) 2020/689, coordinated by the Ministry of Health and the National Reference Centre at IZSVe. This system generates outbreak and wild bird detection data, as well as sequencing outputs used for variant monitoring.

improvements in farm level behaviour across all target groups are consistent with broader shifts in disease patterns and whether new risks require adjustments in communication.

# References

Alderman G and Stranks MH, 1967. The iodine content of bulk herd milk in summer in relation to estimated dietary iodine intake of cows. Journal of the Science of Food and Agriculture, 18, 151–153.

Amalraj, A, Van Meirhaeghe, H, Caekebeke, N, Creve, R, Dufay-Lefort, A.-C, Rousset, N, Spaans, A, Devesa, A, Tilli, G, Piccirillo, A, Żbikowski, A, Kovács, L, Chantziaras, I, Dewulf, J, 2024a. Development and use of Biocheck.UGent™ scoring system to quantify biosecurity in conventional indoor (turkey, duck, breeder) and free-range (layer and broiler) poultry farms. Preventive Veterinary Medicine 230, 106288. https://doi.org/10.1016/j.prevetmed.2024.106288

Amalraj, A, Van Meirhaeghe, H, Chantziaras, I, Dewulf, J, 2024b. Assessing the Impact of On-Farm Biosecurity Coaching on Farmer Perception and Farm Biosecurity Status in Belgian Poultry Production. Animals 14, 2498. https://doi.org/10.3390/ani14172498

AMEC, 2025. Barcelona Principles 4.0. International Association for the Measurement and Evaluation of Communication. https://amecorg.com/resources/barcelona-principles-4-0

Baehler, K, 2007. Intervention Logic/ Program Logic: Toward Good Practice. https://doi.org/10.22459/ii.02.2007.14

Baldrey, V, Ragoonanan, K, Bacon, H, 2024. Survey of the husbandry and biosecurity practices of backyard chicken keepers in the UK. Veterinary Record 195, e4531. https://doi.org/10.1002/vetr.4531

Correia-Gomes, C, Henry, M.K, Reeves, A, Sparks, N, 2021. Management and biosecurity practices by small to medium egg producers in Scotland. British Poultry Science 62, 499–508. https://doi.org/10.1080/00071668.2021.1894635

Correia-Gomes, C, Sparks, N, 2020. Exploring the attitudes of backyard poultry keepers to health and biosecurity. Preventive Veterinary Medicine 174, 104812. https://doi.org/10.1016/j.prevetmed.2019.104812

Castillo, J, Porta, F, Levery, V, Tozer, N, and Fierens, V, 2026. Preparatory work in support of risk communication on biosecurity in relation to poultry. EFSA supporting publication 2026:EN-9907. 6 pp. https://doi:10.2903/sp.efsa.2026.EN-9907

Crovato, S, Alessio, M, Paolo, M, Tiziano, D, Favretto, A.R, Francesca, Z, Giulia, M, Giandomenico, P, 2024. The application of biosecurity practices for preventing avian influenza in North-Eastern Italy turkey farms: An analysis of the point of view and perception of farmers. Preventive Veterinary Medicine 222, 106084. https://doi.org/10.1016/j.prevetmed.2023.106084

Delanglez, F, Ampe, B, Watteyn, A, Van Damme, L.G.W, Tuyttens, F.A.M, 2024. How Do Flemish Laying Hen Farmers and Private Bird Keepers Comply with and Think about Measures to Control Avian Influenza? Veterinary Sciences 11, 475. https://doi.org/10.3390/vetsci11100475

Delpont, M, Guinat, C, Guérin, J-L, Le leu, E, Vaillancourt, J-P, Paul, M.C, 2021a. Biosecurity measures in French poultry farms are associated with farm type and location. Preventive Veterinary Medicine 195, 105466. https://doi.org/10.1016/j.prevetmed.2021.105466

Delpont, M, Racicot, M, Durivage, A, Fornili, L, Guerin, J, Vaillancourt, J, Paul, M.C, 2021b. Determinants of biosecurity practices in French duck farms after a H5N8 Highly Pathogenic Avian Influenza epidemic: The effect of farmer knowledge, attitudes and personality traits. Transbound Emerg Dis 68, 51–61. https://doi.org/10.1111/tbed.13462

EFSA AHAW Panel, More, S, Bicout, D, Bøtner, A, Butterworth, A, Calistri, P, Depner, K, Edwards, S, Garin-Bastuji, B, Good, M, Gortázar Schmidt, C, Michel, V, Miranda, M.A, Saxmose Nielsen, S, Raj, M, Sihvonen, L, Spoolder, H, Thulke, H.H, Velarde, A, Willeberg, P, Winckler, C, Adlhoch, C, Baldinelli, F, Breed, A, Brouwer, A, Guillemain, M, Harder, T, Monne, I, Roberts, H, Cortinas Abrahantes, J, Mosbach-Schulz, O, Verdonck, F, Morgado, J, Stegeman, A, 2017. Statement on urgent request on avian influenza. *EFSA Journal* 15, 4687. https://doi.org/10.2903/j.efsa.2016.4687

European Commission (2025, October 13). Commission Implementing Decision (EU) 2025/2079 on highly pathogenic avian influenza emergency meas….

Herrmann, A, Schulz, K, Wischnewski, N, Brüssau, J, Zeiler, E, Sauter-Louis, C, 2024. Risk Awareness and Attitude of German Farmers towards Biosecurity Measures. Animals (Basel) 14, 1102. https://doi.org/10.3390/ani14071102

Hosseini, P, Syndicus, I, Houghton, E, Alarcon, P, Fournie, G, Guitian, J, Paterson, A, Banyard, A.C, Brown, I.H, Hepple, R, Wood, J.L.N, 2025. Qualitative studies on farm managers perception of risk from HPAIV and implementation of biosecurity measures on UK poultry farms. Preventive Veterinary Medicine 239, 106445. https://doi.org/10.1016/j.prevetmed.2025.106445

Jewitt, S, McClaughlin, E, Elliott, S, Smallman-Raynor, M, Clark, M, Dunham, S, Tarlinton, R, 2024. Veterinarians' knowledge and experience of avian influenza and perspectives on control measures in the UK. Vet Rec 195, e3713. https://doi.org/10.1002/vetr.3713

Jewitt, S, Smallman-Raynor, M, McClaughlin, E, Clark, M, Dunham, S, Elliott, S, Munro, A, Parnell, T, Tarlinton, R, 2023. Exploring the responses of small-scale poultry keepers to avian influenza regulations and guidance in the United Kingdom, with recommendations for improved biosecurity messaging. Heliyon 9. https://doi.org/10.1016/j.heliyon.2023.e19211

Laconi, A, Tilli, G, Galuppo, F, Grilli, G, Souillard, R, Piccirillo, A, 2023. Stakeholders' Perceptions of Biosecurity Implementation in Italian Poultry Farms. Animals 13, 3246. https://doi.org/10.3390/ani13203246

McClaughlin, E, Elliott, S, Jewitt, S, Smallman-Raynor, M, Dunham, S, Parnell, T, Clark, M, Tarlinton, R, 2024. UK flockdown: A survey of small-scale poultry keepers and their understanding of governmental guidance on highly pathogenic avian influenza

(HPAI). Prev Vet Med 224, 106117. https://doi.org/10.1016/j.prevetmed.2024.106117

Millman, C, Christley, R, Rigby, D, Dennis, D, O'Brien, S.J, Williams, N, 2017. "Catch 22": Biosecurity awareness, interpretation and practice amongst poultry catchers. Preventive Veterinary Medicine 141, 22–32. https://doi.org/10.1016/j.prevetmed.2017.04.002

Souillard, R, Allain, V, Dufay-Lefort, A.C, Rousset, N, Amalraj, A, Spaans, A, Zbikowski, A, Piccirillo, A, Sevilla-Navarro, S, Kovács, L, Le Bouquin, S, 2025. Advisers' perception of biosecurity implementation on large-scale poultry farms in Europe. Preventive Veterinary Medicine 241, 106552. https://doi.org/10.1016/j.prevetmed.2025.106552

Tilli, G, Laconi, A, Galuppo, F, Grilli, G, Żbikowski, A, Amalraj, A, Piccirillo, A, 2024. Supporting Measures to Improve Biosecurity within Italian Poultry Production. Animals 14, 1734. https://doi.org/10.3390/ani14121734

# APPENDIX A – Campaign structure material

## A.1. Year 1 material

Leaflet:

The introductory brochure, or leaflet, is designed as a short explainer whose sole purpose is to clarify the logic of biosecurity and motivate first attention, not to provide a full manual. Still, a second and more technical version of this leaflet could be produced for a more professional audience.

Distribution should be highly targeted and context specific. For experienced family farmers, leaflets should be handed out by veterinarians during routine visits or placed in trusted locations such as feed stores, agricultural supply shops and local vet clinics. For small-scale and backyard keepers, including semi-subsistence farmers, who often operate outside formal channels and may have limited access to tailored information, distribution should rely on para- veterinarians, municipal offices, local markets and community events, where the leaflet can be introduced in a familiar and informal setting. In some cases, it may also be included in mailings from local authorities or cooperatives. For on-site workers, leaflets can be used as part of workplace materials, pinned in break rooms or handed out during safety briefings. In all cases, the leaflet supports the campaign's behavioural strategy by reducing the cognitive and practical cost of engagement and guiding users to a single, authoritative source of information.

**Table 14. Year 1 brochure content**

| Section | Content depicted |
|---|---|
| **Why this matters now?** | Very short explanation of the current avian influenza risk.<br>Emphasis on seasonality and moments of highest risk.<br>One clear statement on the consequences of an introduction for the farm (risk of culling). |
| **How the virus usually enters?** | Simple visual explanation of the main introduction pathways:<br>Contact with wild birds.<br>Introduction via people, boots, clothing, equipment.<br>Introduction via vehicles and service providers.<br>Spread from sick birds to healthy birds. |
| **The three or four measures that prevent most introductions** | Focus on a very small set of flagship actions:<br>Separate birds from wild birds, sick birds, and other species.<br>Control farm access and visitor movements.<br>Change clothes and clean boots on entry.<br>Respect clean/dirty separation.<br>Each measure explained in one or two sentences, with a simple diagram. |
| **Why these measures work?** | Short explanation of how separation and hygiene break transmission chains.<br>Emphasis on effectiveness of simple routines when applied consistently |
| **What to do first?** | A short "Start here" box with two or three priority actions to take immediately.<br>Reference to seasonal timing, for example before restocking or at the start of the high risk season. |
| **Go further with biosecurity!** | Clear call to action directing readers to the EFSA or local authority website.<br>QR code and link to a page titled "How to go further with biosecurity".<br>Indication that more detailed guidance, videos, and checklists are available online. |

Visual poster

The poster explains, at a glance, how avian influenza enters and spreads on a farm, its health and economic impact, and shows that a few predictable routes are responsible for most

introductions. It links each route to one simple preventive action, with a strong focus on separation of birds and hygiene.

Posters serve a dual function within the campaign. When placed on farms, they act as practical reminders, reinforcing key behaviours during daily routines and helping to maintain awareness over time. For this purpose, veterinarians are the most effective distributors for almost all segments, particularly during routine visits, as they can ensure posters are placed in the right locations where they will be seen and used. At the same time, posters also play a broader awareness-raising role when displayed in the spaces managed by trusted messengers and/or multipliers. For example, when hung in veterinary waiting rooms, feed stores or agricultural supply shops, they signal the campaign's presence and legitimacy and expose farmers to its messages even before direct engagement. For small-scale and backyard farmers, it is especially important that posters are visible in familiar, frequented places such as feed stores or local markets rather than in less relevant settings like veterinary waiting rooms.

**Table 15. Poster's positioning and messages**

| Poster section | Visual content | Key message |
|---|---|---|
| **Outside risk sources** | Wild birds near buildings. Visitor and vehicle approaching the gate. | "Wild birds, people, and vehicles can bring the virus in." |
| **Entry routes** | Arrows showing people entering, equipment crossing the gate, contact with wild birds. | "Most outbreaks enter through a few routes." |
| **Inside spread** | One sick bird spreading infection to healthy birds. | "Once inside, the virus spreads quickly between birds." |
| **Separation barriers** | Fence, changing area, isolated sick bird, separate species. | "Separation and hygiene stop transmission." |

Stickers

Stickers will be a useful asset in both Year 1 and Year 2 of the campaign, though their role and design will differ slightly across phases. In Year 1, their function is to help provide legitimacy to biosecurity measures while being a highly visible prompt of where avian flu might spread and be transmitted. They are not yet intended to support habit formation, as this will be covered in Year 2, but should rather stress where a security measure should be put in place and how said measure would prevent avian influenza to spread within the farm. Placement should be context specific, targeting decision points such as coop doors, boot cleaning stations, feed bins or vehicle entry areas, depending on the audience.

The design should be bold and minimal, using a strong visual cue and a single, memorable message. For reasons of sustainability and consistency, the existing EFSA campaign stickers can be reused, with the addition of the national competent authority's logo to align with other campaign materials. The visual identity should remain coherent across formats, although colours may be adapted to match national branding. The #NoBirdFlu hashtag can serve as

the central element, accompanied by a short behavioural prompt such as "Stop. Clean your boots" or "Keep wild birds out." A QR code should be included, linking directly to the national campaign website, where users can access further guidance.

The distribution strategy should mirror the one of leaflets.

## A.2. Year 2 materials

Stickers – General

In Year 2, the campaign will make use of two types of stickers: general behavioural prompts and infection symptom alerts. General stickers continue the approach introduced in Year 1, reinforcing key routines at the exact point where action is required. These include entry point stickers reminding staff and visitors to register and limit movements, hygiene prompts at changing areas, cues for maintaining clean and dirty separation, and reminders to separate birds by health status or species. Each message is short, direct and placed where decisions are made, helping to reduce lapses and support habit formation. The design remains bold and minimal, using the #NoBirdFlu hashtag and a QR code linking to the relevant "How to go further with biosecurity" page on the national campaign website. For consistency and sustainability, the existing EFSA sticker designs can be reused, with the addition of the national competent authority's logo and adapted colours where needed.

**Table 16. Stickers general messages**

| Entry point | Bird separation | Changing area | Clean dirty zones |
|---|---|---|---|
| "Stop: visitors must register before entering. Keep birds safe." | "Separate healthy birds from wild birds, **sick birds,** and other species." | "Change clothes and disinfect boots before entering poultry areas." | "Keep clean and dirty areas separate. Prevent disease spread." |
| Remind everyone at the farm entrance to control movements and reduce introduction risk. | Emphasise the importance of spotting sick birds | Reinforce daily hygiene routines at the moment of action. | Prompt correct routing within buildings or between production zones. |

Stickers – Infection symptoms

In parallel, a new set of symptom alert stickers is introduced to support early detection and rapid response. These stickers use short, memorable slogans in local language, designed to prompt immediate recognition and action during daily inspections. Rather than relying on technical language, they use simple phrasing and visual cues to encourage farmers and workers to notice key signs, isolate suspect birds and contact a veterinarian without delay. Placed along inspection routes and inside poultry houses, these stickers help embed early detection into routine observation and reduce the risk of silent spread. Examples include "No appetite. No delay." for sudden drops in feed intake, "Less eggs. More checks." for changes in egg production, and "Dead bird. Call first." for unexplained mortality. Together, both types

of stickers support the campaign's behavioural objectives by reinforcing key actions, reducing cognitive effort, and making biosecurity visible and actionable in the daily environment.

**Table 17. Alert stickers**

| Message | Infection symptom tackled |
|---|---|
| "No appetite. No delay." | Sudden drop in feed or water intake. |
| "Less eggs. More checks." | Drop in egg production or soft shelled eggs. |
| "See sick. Separate quick." | General message with action related prompt. |
| "Strange signs. Act fast." | Increased mortality or unusual deaths |
| "Dead bird. Call first." | Increased mortality or unusual deaths |

## A.3. #NoBirdFlu Toolkit (2025)

In September 2025, EFSA, in cooperation with the European Commission, launched the #NoBirdFlu communication toolkit, a pan-European initiative aimed at strengthening biosecurity practices to prevent the introduction and spread of avian influenza. The toolkit was released at the start of the autumn migratory season, a period associated with increased avian influenza risk in Europe.

The #NoBirdFlu toolkit is designed to support farmers, farm workers, veterinarians, small flock holders, and farm visitors, with a particular focus on small and medium-sized farms. Its objective is to raise awareness of the importance of applying biosecurity measures to protect animal and public health, ensure continuity of food production, and minimise economic and trade disruptions.


**Figure 11. #NoBirdFlu poster (2025)**

The toolkit includes a range of ready-to-use communication materials, translated into all EU languages, such as:

- A detailed infographic providing guidance on hygiene practices, use of protective equipment, and movement control for animals, workers, tools, and visitors;
- Posters offering visual reminders of key biosecurity actions to be integrated into daily routines (Figure 12);
- Social media content (e.g. stickers and posts) to support outreach to farming communities and the wider public (Figure 13).

In parallel, the European Commission requested EFSA to conduct research in 2025 on the risk perception of farmers, veterinarians, and farm workers in relation to avian influenza, which is the context in which both the audience segmentation report and this technical report was developed.

The findings of this research will indeed be informing broader EU-wide awareness-raising initiatives planned for 2026, aimed at strengthening preparedness and reducing the risk of future avian influenza outbreaks and potential pandemics.

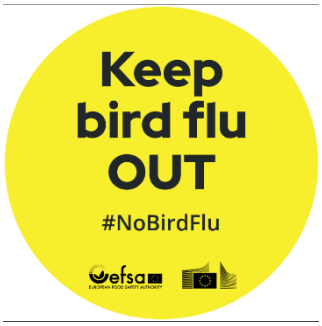


**Figure 12. #NoBirdFlu sticker (2025)**