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DECIDE

Data-driven control and prioritisation of
non-EU-regulated contagious animal diseases

Deliverable 6.5

Training materials

WP6 – Communication activities and dissemination and exploitation of results

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Abbreviations

Abbreviation	Description
BRD	Bovine Respiratory Disease
CRA	Central registration of antibiotics
D	Deliverable
DoA	Description of Action
EU	European Union
IB	Infectious Bronchitis
PD	Pancreas Disease
PMP	Poultry monitoring program
WP	Work Package

Partner short names

Short name	Organisation
UU	Universiteit Utrecht
UGent	Universiteit Gent
SVA	Statens Veterinärmedicinska Anstalt
NVI	Veterinærinstituttet – Norwegian Veterinary Institute
accelCH	accelopment Schweiz AG

Executive Summary

This deliverable presents a template for training materials and its application to the first three tools developed by the DECIDE project. These materials provide concise, two-page guides for three of the tools developed within the project: the Cattle Barometer, the Cattle Purchase Assistant, and the Norwegian Salmon Tool Laksetap. Training materials for each tool are presented in English and corresponding local language.

Objectives of the Deliverable

The aim of this deliverable is to ensure that end-users can easily understand and later use these tools, thus maximising their benefits and the overall impact of the DECIDE project. Specifically, this includes:

- Disseminating key information about the tools and their intended use to practitioners.
- Facilitating the successful uptake of DECIDE tools by end-users in the livestock and aquaculture sectors.
- Bridging the gap between the project's outputs and the end-users who can benefit from them.
- Promoting the sharing and adaptation of tools across EU countries and different animal species by disseminating training materials to encourage broader application and customization.
- Presenting the project's results in a user-friendly and accessible manner, in this case, through the production of training materials.

Activities

The training materials presented in this deliverable have been developed collaboratively by the DECIDE consortium. Each tool's training material was developed by the respective species groups and the Work Packages (WP) 6 and WP3.

Outcome

The outcome of this deliverable is the collection of the first three exemplary training materials of the DECIDE project. These materials cover the following tools:

1. The Cattle Barometer: A tool visualising in time and location pathogen-specific lab results of respiratory tract samples obtained from cattle in European countries.
2. The Cattle Purchase Assistant: A tool providing a summary of herd-level bulk milk lab tests for key pathogens, displaying current herd health status, and offering a search function to find animals for sale.
3. Laksetap - the Norwegian Salmon Tool: A visualisation tool for farmed salmonids losses and mortality calculator.

Next steps

Training materials are currently available for three tools that have reached a sufficient readiness level. The final description of other tools will be presented in M42 (D3.2 Prototype of decision support tools) and M60 (D3.4 Revised data-driven framework for disease monitoring and prioritisation).

As the DECIDE project progresses and more tools reach sufficient readiness, these training materials will be continually expanded and adapted for all publicly available tools. Furthermore, video tutorials will be created to further improve accessibility.

1 Introduction

The DECIDE project, a five-year Horizon 2020 project, is dedicated to the research and development as well as the testing and evaluation of data-driven decision support tools that offer robust and early signals of disease emergence and options for diagnostic confirmation.

It is expected that some of the tools will be ready to be used by the public or specific stakeholders immediately after they are delivered by the project. Others will be prototypes that can be used by researchers or developed further to reach a higher technology readiness level. Ensuring that all of these innovative tools and tool prototypes are accessible and user-friendly is crucial for the overall success of the project. To this end, we have created a series of short-format training materials designed to guide end-users in the practical application of these tools.

This deliverable presents these training materials - concise, two-page training guides - for three of the tools developed within the DECIDE project:

- **Cattle Barometer:** An innovative tool visualising in time and location pathogen-specific lab results of respiratory tract samples obtained from cattle in European countries in the form of an interactive dashboard. The barometer is an online tool which aims to help farmers and their veterinarians in the decision-making to stay ahead of potential outbreaks of bovine respiratory disease.
- **Purchase Assistant:** A dashboard designed for farmers and their advisors, providing a summary of herd lab tests for key pathogens available, displaying current Green List status, and offering a search function to find animals for sale. This tool is for cattle farmers that are part of testing programs and for farmers and animal traders that trade cattle.
- **Laksetap – the Norwegian Salmon Tool:** A visualisation tool for mortality and other types of losses in captive salmonids in Norway at national and regional levels. Farmers can compare salmonid mortality in their operations against other companies to identify improvements and implement best practices, leading to healthier fish and sustainable farming.

These training materials have been developed through a collaborative effort between Work Package (WP) 6 (Communication, Dissemination, and Exploitation), WP3 (Data-driven Decision Support Tools), as well as the data leads of the different species groups – cattle and salmon. The goal of this deliverable is to ensure that end-users can easily understand and effectively use these tools, thus maximising their benefits and the overall impact of the DECIDE project.

As the DECIDE project progresses and more tools are developed, these training materials will be continually expanded and adopted for all publicly available tools. Future iterations will include comprehensive video tutorials and, where beneficial, translations into local languages to cater to a broader audience, ensuring that all stakeholders can fully leverage the potential of these innovative solutions. Additionally, by promoting cross-border implementation across the EU, these materials will facilitate the sharing and adaptation of tools developed for specific contexts, enabling their broader application and customisation for other countries and animal species.

The use and deployment of these training materials will contribute to equipping end-users with the knowledge and skills necessary to make use of the DECIDE decision support tools, ultimately contributing to better disease management and enhanced productivity in the livestock and aquaculture industries.

1.1 Process and selection of tools

The tools featured in this deliverable have been selected based on their levels of maturity and readiness for end-user application. Across all species and work packages, the DECIDE project is working on over 12 different tools aimed at enhancing disease management and diagnostic confirmation in the livestock and aquaculture sectors. The tools are still under development and have reached different levels of technical readiness. The final description of tools is planned to be delivered in M42 (D3.2 Prototype of decision support tools) and M60 (D3.4 Revised data-driven framework for disease monitoring and prioritisation). The description and dissemination of tools will include open-source code, detailed description of functions and intended use, metadata from project case studies, example datasets, and, also, introductory training materials, based on the template presented in this deliverable (See Annex 2). For the purpose of showcasing the concept of the training materials, we have chosen three tools that are currently being piloted and are ready for practical use.

The selection process for these tools (cattle barometer, cattle purchase assistant and the Norwegian salmon tool) was done in a collaborative effort within the consortium and led by WP3. Their insight and expertise on the maturity and status of all tools were instrumental in this decision. The primary criterion for selection was the tools' operational readiness and their potential to provide value to end-users at this stage of the project. After the selection of the tools, WP6 led the development of the training materials in form and layout, ensuring that these are straightforward and accessible. The aim was to create easy-to-grasp, short-form materials that can be printed or downloaded digitally, providing end-users with an efficient introduction to each tool. These training materials are also Outreach materials, important for raising awareness and informing potential users about the tools in a clear and concise manner.

To ensure consistency and quality, WP6 prepared input collectors following a standardised layout template (see Annex 1). DECIDE partners responsible for each of the tools from the respective species groups then individually populated these templates with content, detailing the functionality and benefits of each tool. This structured approach ensured that the training materials are both informative and user-friendly.

1.2 Intended use of training materials

The training materials are designed to facilitate and support the end-user in the initial steps of setting up and using the basic functionalities of the tools. Each tool is summarised on a two-page document. The first page outlines the essential details of the tool, including its purpose and intended users. The second page provides a step-by-step guide on how to use the tool, detailing the prerequisites and instructions, as well as how to interpret the results shown by the tools.

As laid out in the project’s Description of Action (DoA), the developed training materials are intended to be distributed to beneficiaries and stakeholders involved in the pilot implementations of the decision-support tools. To support these efforts, piloting partners are encouraged to translate the training materials into the local languages.

The distribution of the training materials is planned to occur on multiple levels to maximise reach and impact. Generally, these materials will be made available via the [DECIDE website](#) and related channels, ensuring easy access for all DECIDE stakeholders and interested audiences, especially end-users. Locally, the materials will be distributed through the DECIDE partner organisations and their stakeholder networks, directly reaching the end-users in their specific contexts. Additionally, sector-wide dissemination will occur at relevant conferences and fairs, where physical copies of the materials can be handed out, facilitating direct engagement with potential users (see Figure 1).

All DECIDE partners are committed to distributing these training materials to end-users wherever possible and applicable, e.g. in stakeholder focus groups and in support of the piloting efforts of each tool. In addition to these distribution efforts, the project is actively working to enable synergies and further development/use of tools across species and member states. For tools where similar data is available in several member states, the training materials will be translated into the local language. Also, when data availability and a local version of a tool is not yet established, some training material will be translated and included in dialogue with users. This approach aims to gather inspiration, feedback and discussion of user needs.

The chapters below present the training materials developed for the cattle barometer, the purchase assistant and the Norwegian salmon tool.



Figure 1: Mock-up of the training materials as a print handout.

The cattle barometer (EN)

A European dashboard for respiratory disease in cattle

The cattle barometer is an innovative tool conducted within the framework of the DECIDE project (Horizon2020) which visualizes pathogen-specific lab results of respiratory tract samples obtained from cattle in European countries. The historical trend, dynamics and current presence of specific pathogens per area is depicted in a dashboard, and it holds the potential for early warning and to support decision-making by the farmer and veterinarian to control infectious diseases on farm.

Key features

- The aim: to create awareness of circulating BRD pathogens in the region and early warning systems by continuous updating lab results
- Visualization and analyses of pathogen-specific lab results from cattle with respiratory disease across Europe (currently BE, NL, FR, IRE). The historical trend, dynamics and current presence of specific pathogens per area are embedded in a dashboard: simply click, filter and explore to gain insights
- Could support pathogen-oriented decision making, such as preventive measures (e.g., vaccination), enhanced biosecurity, and targeted treatment by farmers and veterinarians

Who is this tool for?

The barometer is an online tool which aims to help farmers and their veterinarians in the decision-making to stay ahead of potential outbreaks. For example, when an increase in the positive sample rate for a specific pathogen is observed, the farmer could decide to vaccinate the herd to prevent severe disease or perform extra diagnostic testing when purchasing an animal from a specific region. Thus, preventing introduction of disease in a herd.

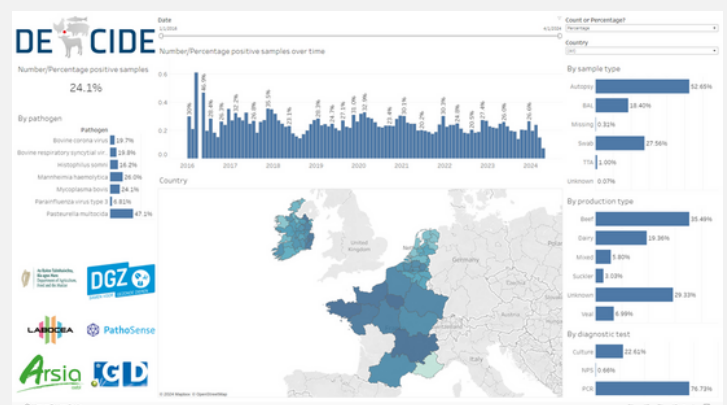


Fig. 1 Screenshot of the barometer



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 101000494.

Getting started

To access the Cattle Barometer tool, ensure you have a computer or smartphone with a stable internet connection. The tool is compatible with Windows, Mac, Android, and iOS devices. Use an up-to-date web browser like Chrome, Firefox, Safari, or Edge for the best experience. Simply open your browser and navigate to <https://decide-project-eu.github.io/case-studies-website/case-studies/cattle-barometer.html>



Scan to
access

1 The dashboard

The default settings of the dashboard show an overview of all the identified respiratory pathogens in different countries. Results from individual animals were aggregated to the herd level. The graphs represent the number of positive herds per month. When choosing the percentage, this is the proportion of positive herds (number of positive herds/total number of herds tested).

2 Discover

More specific information can be obtained by applying filters, which can be added by clicking on the different items, such as the pathogen, area, diagnostic test, sample or production type.

3 Interpretation

Based on the proportion of positive herds in specific areas the farmer could (roughly) estimate the risk for the introduction of a pathogen in his herd. This could support his decision-making for vaccination or additional protocols for purchased animals (e.g., extra diagnostics, longer quarantine period).

For pathogen-specific information: <https://decide-project-eu.github.io/case-studies-website/tutorials/cattle-barometer.html#pathogen-specific-information>

It should be taken into consideration that the displayed results cannot be extrapolated to prevalence, as they are based on submissions of samples from clinically ill animals.

Contact

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<https://decide-project-eu.github.io/case-studies-website/tutorials/cattle-barometer.html>

De Rundvee Barometer (NL)

Een Europees dashboard voor ademhalingsziekten bij rundvee

De rundveebarometer is een innovatief hulpmiddel binnen het DECIDE-project (Horizon2020) dat pathogeen specifieke laboratoriumresultaten visualiseert afkomstig van ademhalingsmonsters verkregen van rundvee in Europese landen. De historische trend, dynamiek en huidige aanwezigheid van specifieke pathogenen per gebied worden weergegeven in een dashboard, en het heeft potentieel voor vroege waarschuwing en om de besluitvorming door de boer en dierenarts te ondersteunen bij het beheersen van infectieziekten op de boerderij.

Voor wie is dit hulpmiddel bedoeld?

De barometer is een online hulpmiddel dat boeren en hun dierenartsen wil helpen bij de besluitvorming om mogelijke uitbraken voor te blijven. Bijvoorbeeld, wanneer een toename van het positieve monsterpercentage voor een specifiek pathogeen wordt waargenomen, kan de boer besluiten de kudde te vaccineren om ernstige ziekte te voorkomen of extra diagnostische tests uit te voeren bij de aankoop van een dier uit een specifieke regio. Zo wordt de introductie van ziekte in een kudde voorkomen.

Sleutelementen van de tool

- Het doel: creëren van bewustwording over circulerende BRD-pathogenen in de regio en vroege waarschuwingssystemen door continue bijwerking van laboratoriumresultaten
- Visualisatie en analyse van pathogeen-specifieke laboratoriumresultaten van rundvee met ademhalingsziekten in heel Europa (momenteel BE, NL, FR, IER). De historische trend, dynamiek en huidige aanwezigheid van specifieke pathogenen per gebied zijn opgenomen in een dashboard: eenvoudig klikken, filteren en verkennen om inzichten te verkrijgen
- Kan pathogeen-georiënteerde besluitvorming ondersteunen, zoals preventieve maatregelen (bijv. vaccinatie), verbeterde bioveiligheid en gerichte behandeling door boeren en dierenartsen

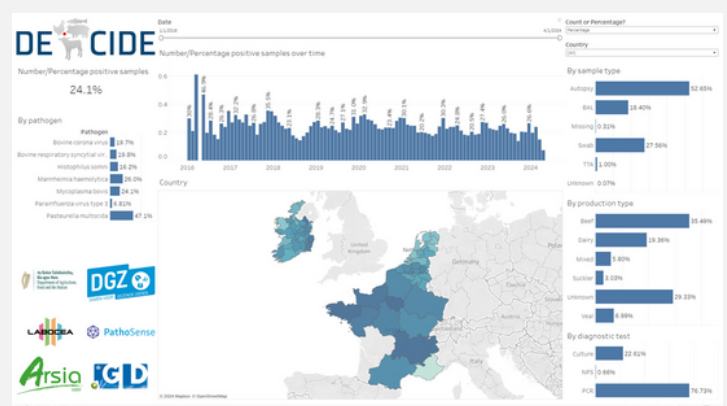


Fig. 1 Screenshot van de barometer



Aan de slag

Zorg ervoor dat u een computer of smartphone met een stabiele internetverbinding hebt om toegang te krijgen tot de Cattle Barometer-tool. Het hulpmiddel is compatibel met Windows-, Mac-, Android- en iOS-apparaten. Voor de beste ervaring gebruikt u een up-to-date webbrowser zoals Chrome, Firefox, Safari of Edge. Open eenvoudig uw browser en navigeer naar de Cattle Barometer Tool via: <https://decide-project-eu.github.io/case-studies-website/case-studies/cattle-barometer.html>



Scan voor
toegang

1

Het dashboard

De standaardinstellingen van het dashboard tonen een overzicht van alle geïdentificeerde ademhalingspathogenen in verschillende landen. Resultaten van individuele dieren werden geaggregeerd op kuddeniveau. De grafieken vertegenwoordigen het aantal positieve kuddes per maand. Bij het kiezen van het percentage is dit het aandeel positieve kuddes (aantal positieve kuddes/totaal aantal geteste kuddes).

2

Ontdek

Meer specifieke informatie kan worden verkregen door filters toe te passen, die kunnen worden toegevoegd door te klikken op de verschillende items, zoals het pathofoon, gebied, diagnostische test, monster of productietype.

3

Interpretatie

Op basis van het aandeel positieve kuddes in specifieke gebieden kan de boer (globaal) het risico inschatten voor de introductie van een pathofoon in zijn kudde. Dit kan zijn besluitvorming ondersteunen voor vaccinatie of aanvullende protocollen voor aangekochte dieren (bijv. extra diagnostiek, langere quarantaineperiode).

Voor pathofoon-specifieke informatie: <https://decide-project-eu.github.io/case-studies-website/tutorials/cattle-barometer.html#pathogen-specific-information>

Er moet rekening mee worden gehouden dat de weergegeven resultaten niet kunnen worden geëxtrapoleerd naar prevalentie, aangezien ze zijn gebaseerd op inzendingen van monsters van klinisch zieke dieren.

Contact informatie

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<https://decide-project-eu.github.io/case-studies-website/tutorials/cattle-barometer.html>

The cattle purchase assistant (EN)

A dashboard to access your latest milk lab tests, and to help you trade cattle with other farmers.

The Purchase Assistant is a dashboard designed for farmers and their advisors. It provides a summary of your herd's milk lab tests for key pathogens, shows your current Green List status, and offers a search function to find animals for sale, filtered by type, county, and health status for selected pathogens. You can also check the health status of other farms, post your animals for sale, and assess the risk of pathogen introduction when buying from Swedish farmers. Future updates may include risk estimates based on trading networks, biosecurity measures, and early warning for disease outbreaks in different regions of Sweden.

Who is this tool for?

This tool is for cattle farmers that are part of testing programs and for farmers and animal traders that trade cattle. Veterinary advisors can also be users of the tool if the farmer chooses to share their lab test results with them. The tool is being developed to be used within Sweden. In the future, versions of the tool may be available in Norway, Belgium, and The Netherlands.

Key features

- Summary of laboratory milk tests for *Salmonella* spp., *Mycoplasma bovis*, Bovine Respiratory Syncytial Virus (BRSV) and Bovine coronavirus in the last year in your herd. The type of lab tests available may vary depending on your farmer's association.
- Green List status for those in the FriskKo voluntary program from Växa (Sweden).
- Search function for herds selling animals, with the option to filter your search by animal type, county, and health status for the tested pathogens.
- Check the health status of a farm that is part of the voluntary program.
- Post your animals for sale for other users to find you.
- Estimate what is the risk of introducing a given pathogen in your herd when purchasing animals from other herds.



Photo: Anders Malmberg for SVA



Getting started

To access the purchase assistant, ensure you have a computer or smartphone with a stable internet connection. The tool is compatible with Windows, Mac, Android, and iOS devices. Use an up-to-date web browser like Chrome, Firefox, Safari, or Edge for the best experience. You can access the tool by using your credentials to log in to your farmer's association platform, where you can access your membership area.



Scan to
access

1 Set-up

Your milk lab test results will be made available by your farmer's association, so no data entry is needed. For selling herds that want to post their animals for sale, those will need to enter the number of animals for sale, animal type and breed. For those wanting to buy animals, they will need to enter the desired county of origin, animal type, animal breed, and desired lab test results for selected pathogens in the selling herd.

2 Discover

The lab tests dates and results are shown for selected pathogens. Farmers selling animals enter their information that gets stored in a database, from where intended buyers can search for animals for sale.

Risk of disease introduction is estimated by calculating the probability of introducing at least one positive animal from at least one herd, considering the number of animals to be purchased, the sensitivity of the lab test for a given pathogen, and the estimated county-level prevalence of a given pathogen.

3 Reading the tool

For those herds part of the FriskKo program, their Green List status can be seen in the tool. To be in the Green List, a herd must test negative to selected pathogens in the last four bulk tank milk samples. Bulk tank milk samples are taken four times a year.

For those farmers buying animals, they can see if there is risk of buying animals positive to selected pathogens. It is recommended that if risk of introduction of a given pathogen exists with the purchase, potential buyers should contact their veterinarian for more guidance.

Contact

Swedish Veterinary Agency



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FriskKo inköpsassistent (sv)

En dataöversikt för att komma åt resultaten från dina senaste mjölkprovtagningar och för att hjälpa dig att handla djur med andra djurägare.

Inköpsassistenten är ett interaktivt verktyg designat för lantbrukare och deras rådgivare. Den ger en sammanfattning av din besättnings mjölkprovresultat för nyckelpatogener, visar din nuvarande status i gröna listan och erbjuder en sökfunktion för att hitta djur till salu, filtrerad efter typ, län och hälsostatus för utvalda sjukdomar. Du kan också kontrollera hälsotillståndet på andra gårdar, lägga ut dina djur till försäljning och bedöma risken för sjukdomsintroduktion vid köp från svenska lantbrukare. Framtida uppdateringar kan innehålla riskuppskattningar baserade på handelsnätverk, biosäkerhetsåtgärder och tidig varning för sjukdomsutbrott i olika regioner i Sverige.

Vem är appen till för?

Det här verktyget är för medlemmar i provtagningsprogrammet FriskKo och för lantbrukare och livdjursförmedlare som handlar med nötkreatur. Veterinär rådgivare kan också vara användare av verktyget om lantbrukaren väljer att dela sina labbtestresultat med dem. Verktyget utvecklas för att användas inom Sverige. I framtiden kan versioner av verktyget vara tillgängliga i Norge, Belgien och Nederländerna.

Funktioner

- Sammanfattning av laboriemjölktester för Salmonella spp., Mycoplasma bovis, bovint respiratoriskt syncytialt virus (BRSV) och bovint coronavirus under det senaste året i din besättning. Vilken typ av tester som är tillgängliga kan variera beroende på din förening.
- Status enligt gröna listan för de som ingår i det frivilliga FriskKo-programmet från Växa.
- Sökfunktion för besättningar som säljer djur, med möjlighet att filtrera din sökning efter djurtyp, län och hälsostatus för de testade sjukdomarna.
- Kontrollera hälsotillståndet på en gård som ingår i det frivilliga programmet.
- Lägg ut dina djur till försäljning så att andra användare kan hitta dig.
- Uppskatta risken med att införa en viss sjukdom i din besättning när du köper djur från andra besättningar.
- Potentiella funktioner som ska inkluderas: uppskatta din risk för introduktion med hänsyn till andra faktorer som handelsnätverk, biosäkerhetsåtgärder etc.



Foto: Anders Malmberg för SVA



Kom igång

För att få åtkomst till Purchase Assistant, se till att du har en dator eller smartphone med en stabil internetanslutning. Verktöget är kompatibelt med Windows-, Mac-, Android- och iOS-enheter. Använd en uppdaterad webbläsare som Chrome, Firefox, Safari eller Edge för bästa upplevelse. Du kan komma åt verktyget genom att logga in på din husdjursförenings plattform, där du kan komma åt dina medlemsidor.



skanna för att
komma åt

1 Komma igång

Resultaten av ditt mjölktester kommer att göras tillgängliga av din husdjursförening, så ingen datainmatning behövs.

Besättningar som vill lägga ut sina djur till försäljning anger antal djur till salu, djurtyp och ras.

De som vill köpa djur anger önskat ursprungslän, djurtyp, djurras och önskade labbtestresultat för utvalda sjukdomar i den säljande besättningen.

2 Utforska

Labbtesternas datum och resultat visas för utvalda sjukdomar. Lantbrukare som säljer djur anger sin information som lagras i en databas, varifrån tilltänkta köpare kan söka efter djur till försäljning.

Risken för introduktion av sjukdomar uppskattas genom att beräkna sannolikheten för att introducera minst ett positivt djur från minst en besättning, med hänsyn till antalet djur som ska köpas in, sensitiviteten hos labbtestet för en given sjukdom och den sjukdomens uppskattade prevalens på länsnivå.

3 Använda verktyget

För de besättningar som ingår i FriskKO-programmet kan deras status på gröna listan visas i verktyget. För att vara med på gröna listan måste en besättning testa negativt mot utvalda sjukdomar i de fyra senaste tankmjölksproverna. Tankmjölksprover tas fyra gånger per år.

De lantbrukare som köper djur kan se om det finns risk att köpa djur som testat positivt för utvalda sjukdomar. Det rekommenderas att om risk för introduktion av en viss sjukdom finns vid köpet, bör potentiella köpare kontakta sin veterinär för mer vägledning.

Kontakt

Statens
veterinärmedicinska anstalt



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Laksetap (EN)

Farmed salmonids losses and mortality calculator

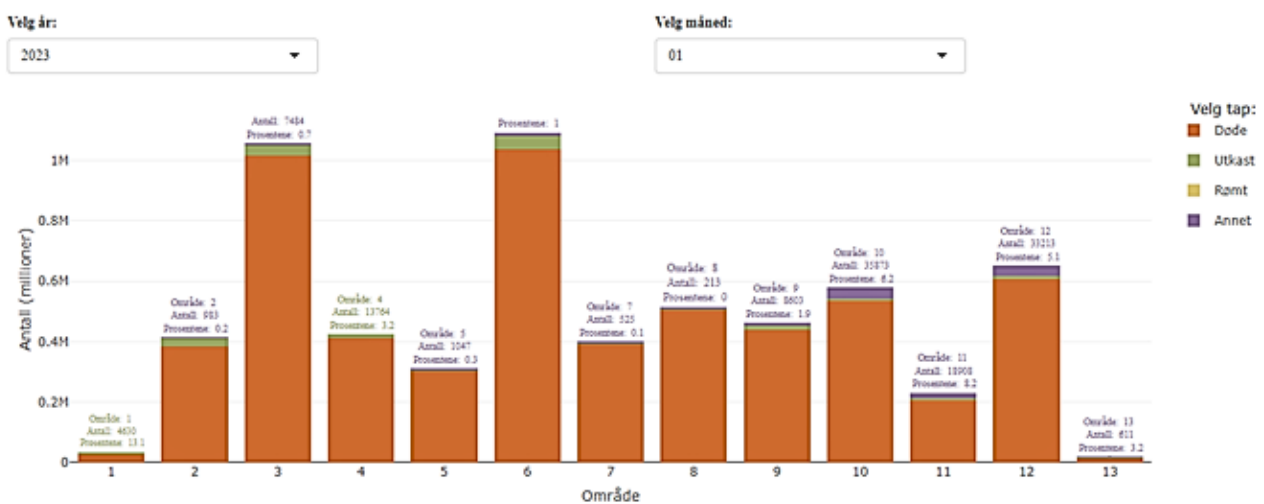
Visualization of mortality in salmonid farming; Data analysis for mortality estimation from production data.

Who is this tool for?

Farmers can compare salmonid mortality in their operations against other companies to identify improvements and implement best practices, leading to healthier fish and sustainable farming. Governmental agencies gain insights for risk-based surveillance and policy-making. Society benefits from transparency, as the tool indicates fish health and welfare, allowing consumers to make informed choices. The tool can also standardize mortality estimations among stakeholders and be useful for other species.

Key features

- Visualization tool for mortality and other types of losses in captive salmonids in Norway at national and regional levels;
- Historical and more recent summaries of salmonid mortality for benchmarking purposes over specified periods, i.e., monthly, annually, and over the production cycle;
- Calculator for mortality during salmonid production with adjustments for population size over the specified periods.



Forklaring av månedlige tall: «Total» viser det totale tapet. «Døde» viser antall døde. «Døde%» viser hvor stor andel av det totale tapet som skyldes døde. Tilsvarende gjelder for «Utkast», «Romt» og «Annet».

Fig. 1 Screenshot of the Laksetap - “Fish losses”



This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No. 101000494.

Getting started

The Laksetap app is accessible from any browser on your computer or smartphone. Simply go to <http://apps.vetinst.no/Laksetap/>. The default language of the current version is Norwegian. You can use your browser's translation feature to access it in other languages.



Scan to
access

1 Set-up

In the sidebar, select the species (Atlantic salmon or rainbow trout) and the area of interest to display in the main panel. Use the main panel's navigation tabs to choose the period for visualizing lost fish (dead, escaped, discarded, and other) on a monthly or annual basis. Adjusted Mortality figures for dead fish are available in separate tabs: monthly, annually, or for completed production cycles.

2 Benchmark

Users can consult the distribution of lost fish in each category and the mortality metrics to benchmark different production areas in Norway. Mortality variations are shown using the median, the middle value when ordered from lowest to highest.

We also provide interval ranges, representing the middle 50% of sites; 25% of sites fall above and 25% fall below this range.

3 DIY

To calculate farm-level mortality, use the 'Mortality calculator' tab for a selected period (e.g., day, week and month). Enter the number of live fish at the start, the number of dead fish during, and the number of fish at the end. The calculator will estimate the period's mortality rate, adjusting for additions or removals. Use the 'Mortality calculator for extended period' tab to estimate mortality for past or ongoing production cycles, ensuring only consecutive months from the same cycle are included. After pressing 'Calculate,' visualizations based on your data will be generated to help monitor mortality.

Contact

Norwegian Veterinary Institute



laksetap@vetinst.no



[https://github.com/
NorwegianVeterinaryInstitute/
laksetap](https://github.com/NorwegianVeterinaryInstitute/laksetap)

Laksetap (NO)

Kalkulator for tap og dødelighet hos oppdrettslaks

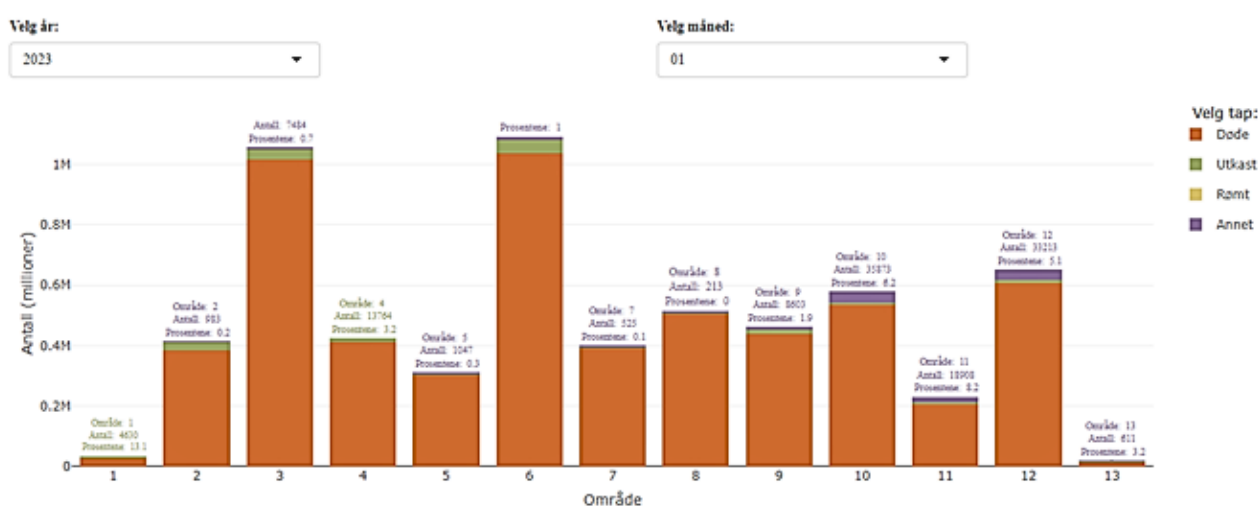
Visualisering av dødelighet i oppdrett av laksefisk; Dataanalyse for dødelighetsestimering basert på produksjonsdata.

Hvem er dette verktøyet for?

Oppdrettere kan sammenligne dødelighet hos laksefisk i sine anlegg med andre selskaper for å identifisere potensielle forbedringer og hvordan implementere disse i den daglige driften. Dette vil i sin tur bidra til sunnere fisk og et mer bærekraftig oppdrett. Offentlige etater får innsikt slik at de kan gjennomføre risikobasert overvåking og politikktutforming. Samfunnet drar nytte av åpenhet, da verktøyet gir indikasjoner på fiskehelse og velferd, slik at forbrukere kan ta informerte valg. Verktøyet kan også benyttes til å standardisere dødelighetsestimater. Dette er nyttig for sammenligning mellom interessenter eller for bruk på andre arter.

Nøkkelfunksjoner

- Visualiseringsverktøy for dødelighet og andre typer tap hos oppdrettslaks i Norge på nasjonalt og regionalt nivå.
- Historiske og ferske oppsummeringer av dødelighet hos laksefisk for spesifiserte perioder, dvs. månedlig, årlig og gjennom produksjonssyklusen.
- Kalkulator for dødelighet gjennom produksjonsperioden hvor endringer gjennom perioden tas hensyn til.



Forklaring av månedlige tall: «Total» viser det totale tapet. «Døde» viser antall døde. «Døde%» viser hvor stor andel av det totale tapet som skyldes døde. Tilsvarende gjelder for «Utkast%», «Rømt%» og «Annet%».

Fig. 1 Skjerm bilde av Laksetap – "Fisketap"



Dette prosjektet har mottatt finansiering fra EUs Horizon 2020 forsknings- og innovasjonsprogram under tilskuddsavtale nr. 101000494.

Kom i gang

Laksetap-appen er tilgjengelig fra enhver nettleser på PC eller smarttelefon. Gå ganske enkelt til <http://apps.vetinst.no/Laksetap/>. Standardspråket i den nåværende versjonen er norsk. Du kan bruke nettleserens oversettelsesfunksjon for å få tilgang til den på andre språk.



Skann for å
få tilgang

1 Velg

I sidepanelet velger du arten (atlantisk laks eller regnbueørret) og interesseområdet for visning i hoved panelet. Bruk navigasjonsfanene i hoved panelet til å velge perioden for visualisering av tapte fisk (døde, rømt, kassert og andre) på månedlig eller årlig basis. Justerte dødelighetstall for døde fisk er tilgjengelige i separate faner: månedlig, årlig eller for fullførte produksjonssykluser.

2 Lokalisertssammenligninger

Brukere kan finne antall tapte fisk fordelt på kategori samt dødelighets statistikk for ulike produksjonsområder i Norge. Disse tallene utgjør et nyttig sammenligning grunnlag for brukere som ønsker å vurdere egen status. Variasjoner i dødelighet vises ved hjelp av medianen, den midterste verdien når dataene er sortert fra lavest til høyest.

Vi gir også intervallområder som representerer de midterste 50% av lokalitetene; 25% av lokalitetene faller over og 25% faller under dette området.

3 Gjør det selv

For å beregne dødelighet på anleggsnivå, bruk fanen 'Dødelighetskalkulator' for en valgt periode (f.eks. dag, uke eller måned). Skriv inn antall levende fisk ved periodens start, antall døde fisk i løpet av perioden, og antall fisk ved slutten. Kalkulatoren vil beregne periodens dødelighetsrate, justert for tillegg eller fjerninger. Bruk fanen 'Dødelighetskalkulator for utvidet periode' for å estimere dødelighet for tidligere eller pågående produksjonssykluser, og sørg for kun å inkludere sammenhengende måneder fra samme syklus. Etter å ha trykket 'Beregn' vil visualiseringer basert på dine data bli generert for å hjelpe til med å overvåke dødeligheten.

Kontaktinformasjon

Norwegian Veterinary Institute

 laksetap@vetinst.no

R-kode brukt til å utvikle dette verktøyet er tilgjengelig på

 <https://github.com/NorwegianVeterinaryInstitute/laksetap>

5 Outlook

The DECIDE project is committed to continuously update and expand the developed training materials to tools as they become available or receive any major updates. While the current materials facilitate a basic understanding and use of the tools, our aim is to enhance these resources with a series of explanatory videos. These videos will demonstrate the use of the tools directly, providing a more interactive and engaging learning experience for end-users.

We consider these resources as part of an “off-the-shelf” package (see Figure 2), which will consist of components based on deliverables from WP3 about all the tools developed and other supporting material developed throughout the project, such as the practice abstracts submitted in D6.4. Our goal is to ensure that all tools developed within the project are accompanied by comprehensive and user-friendly training materials. Whether the user is a farmer/practitioner or researcher/modeller, the training material will present the necessary overview of the context, intended use and functionality of the tool.

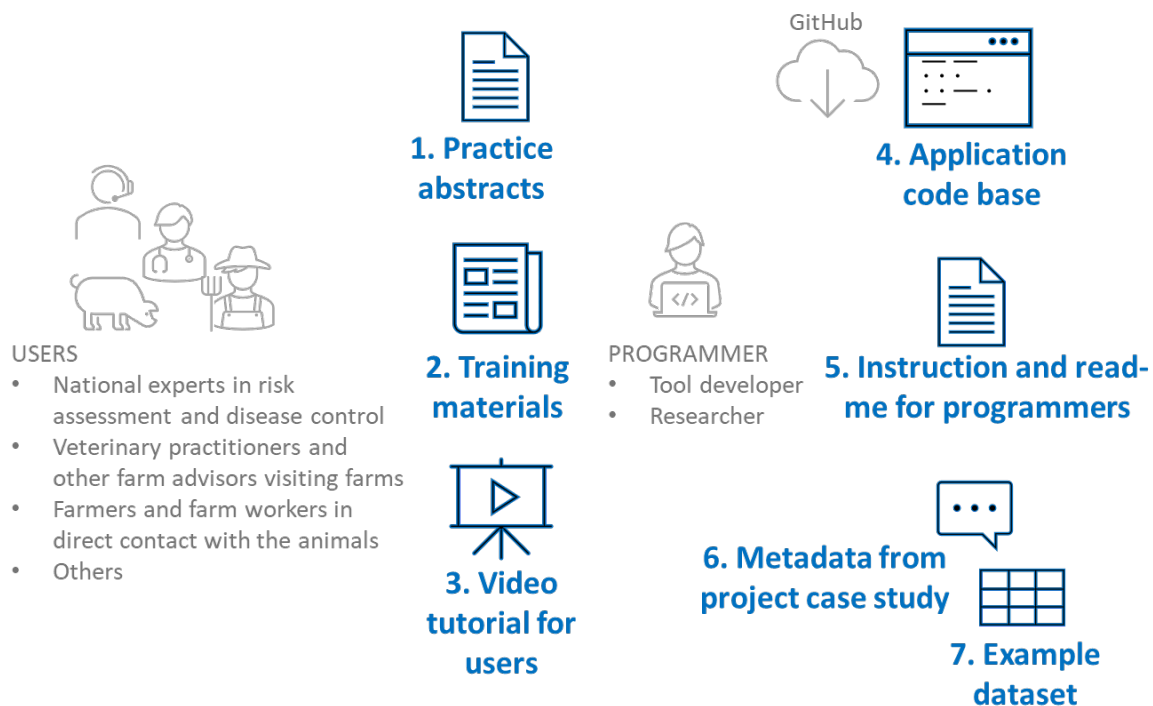


Figure 2. Components (1-7) included in the off-the-shelf tool package planned for tools developed in DECIDE.

Moreover, to ensure accessibility, we plan to translate these training materials into other local languages where applicable. This will ensure that stakeholders on-site can fully make use of the tools relevant to their field and region, in their spoken language. This, in conclusion, will contribute to our commitment of equipping end-users with the knowledge and skills necessary to effectively use the innovative decision support tools developed within the DECIDE project.

Annex 1 – Input collector



The training material for each tool will consist of a two-page document, explaining the key information of the tool, how and by whom it is intended to be used. On page two, we aim to include instructions on how each tool needs to be used (requirements and instructions).

Please include the required information in the table below.

Title of the tool	Please include the name of the tool here
Subtitle / tagline (5-10 words)	Please include a short subtitle of the tool here that captures the main function of the tool (e.g. “a European dashboard for BRD in cattle.”)
Key facts of the tool	Please include key information regarding the tool in bullet points (Main features or functionalities, e.g. data analysis capabilities, visualization tools, predictive modeling etc.)
Laymen-friendly short description of the tool (approx. 500 characters with spaces)	Please include a short description to introduce the end-user to the tool (purpose, function, regions covered etc.)
Who is this tool for? (approx. 500 characters with spaces)	Please include some details on the intended users of this tool (where is the tool to be used? Who can benefit from it)
Instructions	
Getting started / system requirements	In this initial step, please explain the prerequisites / requirements for your tool to be used (technical details, hardware/software needed, etc.) Also include where the user needs to access / download the tool.
Step 1 (e.g. Data entry) (approx. 380 characters with spaces)	To simplify the instructions on the training material as much as possible, we have narrowed the steps down to three steps. The titles of the steps can be changed. Please describe step one of using the tool, e.g. entering data. If needed, link to a data set example in the GitHub repository.
Step 2 (e.g. Analysis / modeling) (approx. 380 characters with spaces)	Please describe step two of using the tool, e.g. how the analysis / modeling works.

Step 3 (e.g. Interpreting results) <i>(approx. 380 characters with spaces)</i>	<i>Please describe step three of using the tool, e.g. how the end-user now interprets the results / decides on next steps.</i>
Further links, contact details <i>(approx. 380 characters with spaces)</i>	<i>Please include any links (e.g. to GitHub) and include your contact details.</i>

Annex 2 – Training materials template



Title of the tool

Short description / subtitle

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Who is this tool for?

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D6.4 Training materials

Key features

Highlight main features or functionalities of the tool.

- data analysis capabilities
- visualization tools
- predictive modeling, etc.

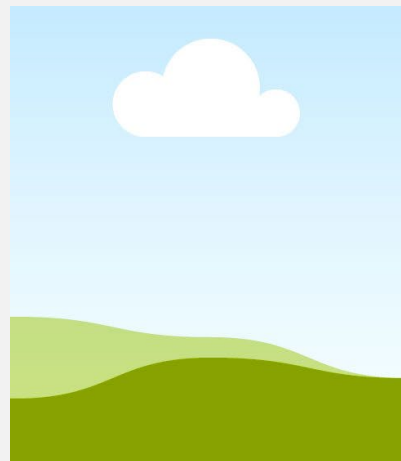


Fig.1 Include visual

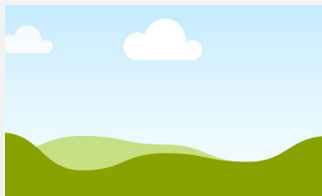
Getting started / system requirements

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1 Data entry

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Fig,2 Include visual

2 Analysis/modeling

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3 Interpreting results

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Contact

Name, Institution

 E-mail address

 Website / links