

The farm and AI

What might a sustainable farm supported by artificial intelligence look like? At this farm of the future, digital tools make it possible to monitor environmental and production data for both animals and plants at every stage. Monitoring animal welfare, optimising health care and feeding, precision weed control or targeted biocontrol: here is an illustration of the many doors opened by AI for more sustainable and resilient agriculture.

AI TO SUPPORT CROP PRODUCTION

1 Observation of crop and environmental status via satellite imagery to detect diseases, water stress, biomass development and more.

2 Use of an intelligent weeding robot to identify 'weeds' and trigger targeted

spraying (or targeted mechanical weeding) in order to limit the use of inputs.

3 Pilot testing of biocontrol systems that let researchers develop odours that attract insect pests into traps or disorient them, without affecting other species.

AI TO SUPPORT LIVESTOCK FARMING

4 Individual monitoring through video tracking to anticipate health or behavioural disorders.

5 Implementation of customised feeding strategies based on video tracking.

6 Development of specific antimicrobial agents for targeted treatments.

7 Detection of pig emotions by decoding vocalisations to improve animal welfare.

8 Creation of digital twins to adjust herd management strategies by simulating different practices.

9 Collection and compiling of data (health alerts, ratio recommendations, weather warnings, etc.) in a single tool.

