

A close-up photograph of a young green seedling with two heart-shaped leaves growing out of dark, rich soil. The background is blurred, focusing attention on the plant.

# RESILIENT AGRICULTURE

How the sustainable performance calculation highlights the value of resilient and sustainable farm management

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## RISKS FROM GEOPOLITICAL ECONOMIC DEPENDENCIES

The global COVID-19 pandemic and the war in Ukraine have accentuated the instability associated with the global food supply chain as we know it. These risks have been building up within the food and agriculture sector over many years, disguised by the pressures of business and market efficiency.

The risks are deeply rooted in the strong dependencies on global, often non-transparent and untraceable supply flows for inputs such as fertiliser, energy and seeds. For example, Russia, Ukraine and Belarus are the world's main suppliers of energy, nitrogen and potash fertilisers. In terms of labour dependencies, most seasonal workers come to Germany from Eastern Europe.

The cultivation of staple crops such as wheat and soya take the first notable hit when supply of these inputs are disrupted. The German Farmers' Association and other institutions recently warned of expected food shortages linked to rising costs and scarcity of artificial fertilisers. The dependency on these fertilisers is so great that, if they cannot be acquired and applied to the required extent, yields will decline. Manufacturing these artificial inputs locally is time-consuming and costly, since the necessary infrastructure must first be built and the fossil energy required for making them must be available in the form of natural gas.

At Regionalwert Leistungen, we have been working for more than 10 years on methods and tools to record and disclose performance and risks for sustainable and resilient management on farms. We know that proper risk management requires the right data and information for good strategic planning.

The origin of the method lies in Christian Hiß's many years of practical experience in organic farming and his criticism of the current business accounting and reporting methods, which so far only show a farm's financial assets. With his work in the project "True performance accounting in agriculture" (*Richtig rechnen in der Landwirtschaft*), he laid the foundation for an improved reporting system that would enable agriculture to become more sustainable and crisis-proof.

## ASSESSING AND MANAGING SUSTAINABILITY AND RESILIENCE

With the sustainable performance calculation, every farm, whether organic or conventional, can have its sustainability and resilience measured and evaluated with minimal effort via an online tool. Our definition of a farm's sustainability is the future security of its business operations without compromising environmental health or human welfare, while resilience reflects the farm's independence, through its ability and flexibility to adapt.

Using up to 350 key performance indicators across dimensions of ecology, society and regional economy, the type and value of sustainable practices on a farm can be assessed and given a monetary value. The ideal farm operates sustainably in all disciplines as well as maintaining an economically viable business.

What kind of fertiliser is used: organic or artificial? Where does it come from: the farm itself, through legume cultivation and compost management, or from synthetic production in Eastern Europe? Where do seeds and planting material come from and what is the division of labour between seasonal workers and skilled workers? Does the farm have a strong tie to the region? Are the main markets within the region or abroad? These are the kind of questions which are answered to make the sustainable performance calculation.

## OVER 100 KEY PERFORMANCE INDICATORS MEASURE RESILIENCE

These and many more questions are asked of the farm during the data collection in the online tool. This allows for results which give an in-depth picture of the whole farm system, and act as a management guide towards more sustainability and resilience.

One third of our 300 indicators measure operational resilience. We would like to highlight them in some of our categories below. All key performance indicators in one category in particular, "Economic sovereignty", ask explicitly about the resilience of essential production methods and highlight short- and long-term risks:

### Soil fertility

- Proportion of soil covered – topsoil preservation

Given the increasing risk of extreme weather events, especially heavy rainfall, ground cover helps to preserve topsoil and thus safeguard future harvests.

- Proportion of area with legumes in crop rotations – self-generated nitrogen

Including nitrogen-fixing legume plants into crop rotations helps to make the farm less dependent on external nitrogen fertilisers.

### Biodiversity

- Number of species in crop & fodder production – promoting natural resistance

Diverse cultivation promotes the resistance of crops to pests. Farms specialising in one or a small range of crop types are more vulnerable to disease pressure and hence yield loss.

- Proportion of untreated areas – avoiding pesticide dependency

Areas treated with artificial plant protection products harm biodiversity. This is associated with the loss of many ecosystem services, such as the presence of natural pollinator species. The future success of an agricultural business relies heavily on conditions in the surrounding ecosystem.

## **Climate & water**

- Number of measures on sustainable transport & traffic – more regional is less vulnerable  
Regional structures are often easier to manage: they offer better traceability and flexibility, and require less fossil fuels than long-distance partnerships.
- Peat content of the growing medium – alternative substrates are more climate-friendly  
Peat is usually transported over long distances, and its extraction is a major contributor to carbon dioxide emissions. Therefore the lower the peat content of the potting soil, the more sustainable it is.

## **Animal welfare**

- Concentrated feed – alternative to self-produced feed  
Concentrated feed for livestock in Europe is largely imported from distant regions, mainly South America. It is a high operational risk to be dependent on these supply chains, as failures and shortages can occur at any time. Locally grown roughage provides a nutritious alternative for livestock.
- Transport time to slaughter – strengthening local connections  
If abattoirs are closer to the source of agricultural production, there is more local autonomy in the area. The spatial proximity promotes a relationship of responsibility and trust between local actors, and ensures that animals do not suffer long transport distances.

## **Expertise**

- Proportion of skilled workers – sustaining knowledge  
A balanced ratio of skilled workers to seasonal workers ensures the future security of the farm's expertise and labour force.

## **Role in the community**

- Knowledge transfer events – building relationships with consumers and organisations  
A business which allocates time to inform interested persons about its farm operations fosters trust and transparency, and thus has a stronger position in the community.

## **Quality of employment**

- Independent work – adaptable working environment  
A company whose employees are well-informed and able to work independently is better equipped to respond to sudden changes caused by social or political emergencies.

### **Economic sovereignty**

- Proportion of open-pollinating varieties – maintaining genetic diversity

Open-pollinating varieties secure the farm's access to genetic resources. The farm can continue to plant and cultivate without the expense of and dependency on seed purchases.

- Proportion of own animal offspring – less reliance on external purchases

Livestock farms with male and female animals are independent in terms of offspring. They have the basic reproductive resources to maintain a herd of livestock on their own farm.

### **Regional economic cycles**

- Share of regional turnover – feeding local populations

Regional sales enable farms to build a closer relationship with their customers. It also means they are less affected by developments in interregional or global markets, which they have little control over.

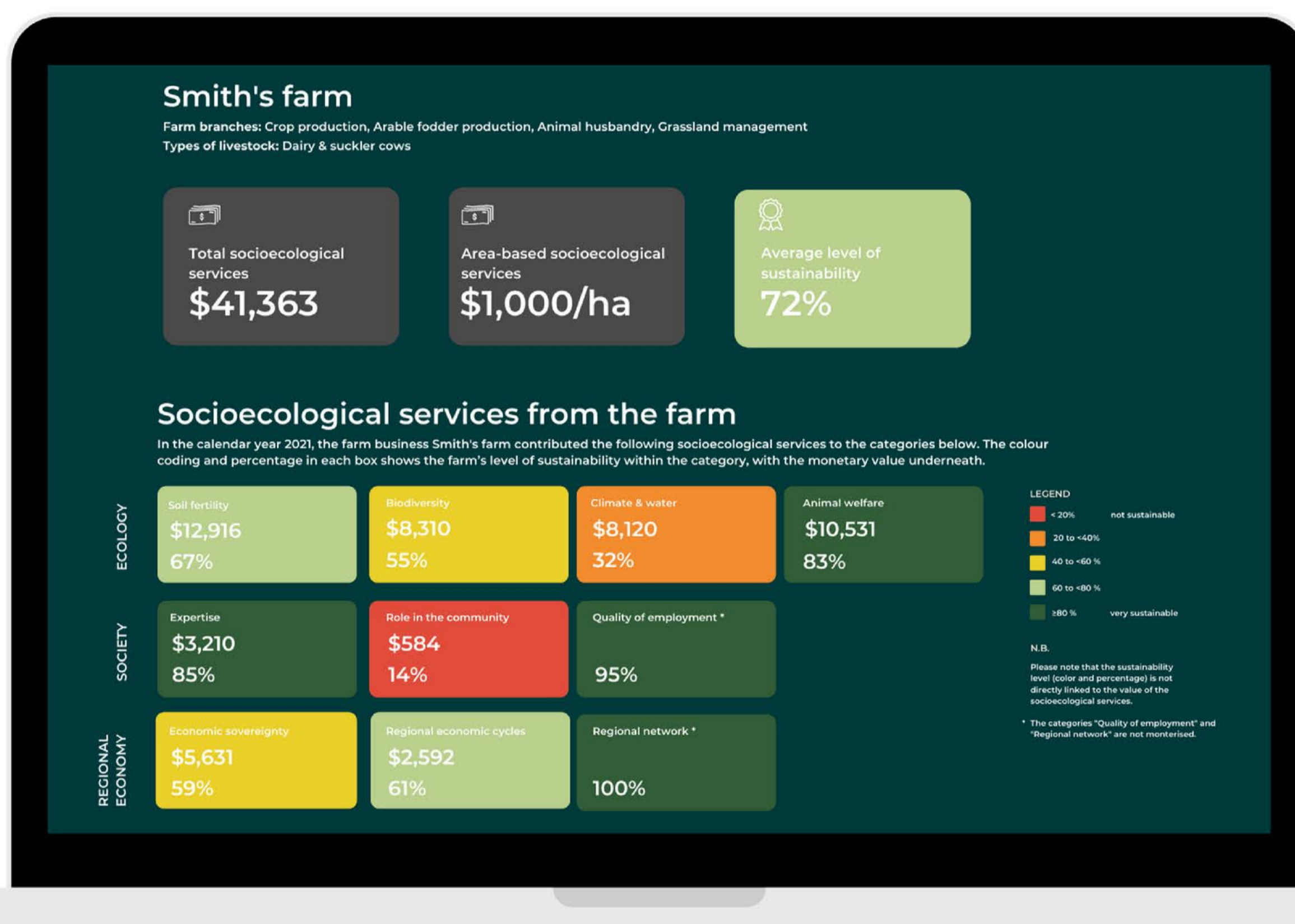
### **Regional network**

- Proportion of machinery shared with other farms – collective capital costs

Shared use of machinery ensures that not every farm has to buy all the equipment it needs itself. Resources are saved and the costs can be split.

## THE RESULTS OF THE SUSTAINABLE PERFORMANCE CALCULATION

On the first page of the results document, the farm can see exactly which categories still have development potential, i.e. pose a risk to the farm business, and which areas are already being managed sustainably and resiliently. The sustainable performance calculation therefore acts as a useful business management and planning tool for the farm.



The individuals results of farms who have filled out the performance calculation so far show great variability between businesses. Farms that were already operating sustainably before the COVID-19 and Eastern European crises show sustainability levels of up to 90%. They are demonstrably less dependent and face fewer yield losses because, for example, nitrogen fertiliser comes from their own farm and they work with a low quota of seasonal labour.

## **THE PERFORMANCE CALCULATION FOR FOOD MANUFACTURERS, TRADERS, BANKS AND POLITICIANS**

Our tool is not only interesting for the individual farm, but also for management departments of manufacturing and trading companies, to assess the security of its raw materials' supply, and for banks to check the creditworthiness of its clients. In both cases, farms with better results in the sustainable performance calculation will remain more stable and resilient to global shocks.

If many farms carry out the performance calculation on behalf of governmental and political institutions, weak links in the supply chain will become more visible and appropriate measures or incentives can be introduced to improve them.

The tool is online, so can be filled out at any time, anywhere with computer access and the results are calculated and available for immediate use after just two to four hours of data entry (depending on the availability of data and the complexity of the farm operations).

## ABOUT US

At Regionalwert Leistungen, we provide tools to enable the transition towards sustainable agriculture and a just food system. As pioneers in the field of financial valuation of sustainability, we are driven by one core idea: while the damage of certain agricultural practices to ecology and society must be accounted for, it is equally, if not more, important that farmers' efforts and practices that contribute to society, ecology and the region are financially quantified and rewarded. For 15 years, the Regionalwert shareholding company in Freiburg (*Regionalwert AG Freiburg*) has been researching and developing instruments in close cooperation with all Regionalwert groups in Germany, to finally make socioecological services in agriculture visible and measurable. We, Regionalwert Leistungen GmbH, distribute these instruments as a partner company of the Regionalwert shareholding company in Freiburg and thus lay the foundation for appropriate payments to sustainable agriculture.

## CONTACT

Do you have any questions? We are just a phone call away and look forward to hearing from you!



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