

Productivity. Competitiveness. Resource conservation.

The new understanding of progress:
sustainable productivity growth!

A DLG discussion paper



Propositions

1. New understanding of progress: 'sustainable productivity growth' is replacing the term 'ecological and socially responsible agriculture and food production.'
2. 'Sustainable productivity growth' refers to increasing yields in crop production and livestock farming, improved species protection, fewer greenhouse gases and increased animal welfare.
3. 'Sustainable productivity growth' requires a reflective and forward-looking attitude towards progress and innovation.
4. The significantly accelerated development of digitalisation, artificial intelligence and new breeding technologies is generating innovations that help resolve conflicts between yield growth and resource conservation.
5. A valuation approach for biodiversity and animal welfare similar to that used for trading greenhouse gas emissions should be introduced.
6. The 'sustainable productivity growth' initiative must come from the industry and businesses themselves. This is where the processes are put into practice.
7. A productive and sustainable agricultural and food sector help stabilise social peace and serves as a key foundation for open democratic societies.



As a sustainable development concept, the Green Deal has foundered in the face of political and economic reality. Productivity and competitiveness have been overly neglected in Germany and Europe in favour of an ecologically and socially driven approach to agriculture and food production. The extensification associated with this approach has resulted in declining yield progress and reduced international competitiveness for agricultural businesses. Conversely, the anticipated progress in greenhouse gas emissions and species extinction has failed to materialise. The current geopolitical upheavals are exposing the weaknesses of strategies shaped by the ecological and social approach. However, this failure must not lead to a departure from the fundamental goals, but must instead serve as a starting point for a discourse on a new understanding of progress that addresses productivity and resource conservation more effectively: ‘sustainable productivity growth.’ This term refers to crop production and livestock farming that are competitive while factoring in improvements in species protection, greenhouse gas emissions and animal welfare. This poses considerable challenges for businesses. While the conflicts between the goals of productivity and resource conservation cannot be fully resolved, they will be significantly eased, particularly if three essential conditions are met.

Firstly, our society requires an openness to progress, an attitude that allows the necessary innovations for ‘sustainable productivity growth’ to emerge. This attitude also involves evaluating benefits and risks as objectively as possible and clearly distinguishing between ‘potential threats’ and ‘actual risks.’ This is one of the initial conditions for successful innovation processes. What gives cause for hope is that behavioural patterns can change quickly when faced with existential challenges, as demonstrated by the current shift in society’s attitude towards endorsing an active security policy – something that would have been inconceivable a few years ago.

Secondly, we need these very innovations. The pace at which digitalisation, artificial intelligence and new breeding technologies are developing is enabling technological and organisational innovations that significantly reduce the conflicting aims of increasing yields and resource conservation. These include, for instance, efficient data management software, improved decision-making and control algorithms, high-resolution sensor systems, semi-autonomous robotics, water-saving crop varieties and robust livestock breeds. This not only increases precision and efficiency, but also leads to increasing yields and better resource protection. Both strengthen the resilience of farms and businesses.

Thirdly, we require objective measurement, evaluation and valorisation of biodiversity and animal welfare which are oriented towards societal goals, similar to the approach used in greenhouse gas emissions trading. This will enable the traditional concept of productivity to be meaningfully extended by the consumption or production of natural resources and will allow it to be developed into the concept of sustainable productivity.

Productivity. Competitiveness. Resource conservation. With regard to biodiversity, initial research results show how automated classification and quantification of species can provide a starting point for valorisation. In the case of animal welfare, the automatic recording and AI-backed evaluation of animal-related indicators in the housing and on the slaughter line can lay the foundation for the monetary evaluation of animal welfare. Despite all efforts, the conflicting goals between productivity and resource conservation cannot be fully resolved. Society must come to terms with this reality, just as it does in other industries that are equally as system-relevant as the agricultural and food sectors. Entrepreneurs from the agricultural sector must take the initiative to implement sustainable productivity growth and drive it forward in collaboration with science and other stakeholders, because the processes and tools have to be tested and employed on the farms themselves. Ultimately, competitiveness determine the long-term success of sustainable productivity growth.

The following propositions focus on the aforementioned considerations and are intended to serve as starting points for critical dialogue on ‘sustainable productivity growth,’ thereby fostering this new understanding of progress.

Propositions

1. New understanding of progress: ‘sustainable productivity growth’ is replacing the term ‘ecological and socially responsible agriculture and food production.’

- a. The coping strategies of ‘ecological and socially responsible agriculture and food production’ are insufficient for the current crises.
- b. Green Deal strategies were inappropriate as an orientation framework. The challenges were addressed too inconsistently.
- c. This is demonstrated by the continuing symptoms of crisis: a lack of progress in yields, deteriorating international competitiveness, insufficient progress in the face of climate change and species extinction.

2. ‘Sustainable productivity growth’ means increasing yields in crop production and livestock farming, improved species protection, fewer greenhouse gases and increased animal welfare.

- a. Species protection, climate protection and animal welfare require an economic basis that is made available through innovative production methods which are adapted to the location.
- b. The potential is developed such that productivity and resource conservation interact in an optimum way.
- c. Not all conflicting aims can be resolved.

3. ‘Sustainable productivity growth’ requires a reflective, forward-looking attitude towards progress and innovation.

- a. The extensive migration of research and development from Germany to countries with a more innovation-friendly environment must be stopped.
- b. Existential challenges are patterns of thoughts. Following the concepts of a ‘Zeitwende’ and ‘war readiness’, active security policy is now becoming possible in Germany. This shift should also apply to research and innovation policy.
- c. Society must realistically assess benefits and risks and learn to distinguish between potential threats and actual risks.

4. The significantly accelerated development of digitalisation, artificial intelligence and new breeding technologies is generating innovations that help resolve conflicts between yield growth and resource conservation.

- a. Digitalisation, artificial intelligence and new breeding technologies are significantly speeding up innovation.
- b. Efficient data management software, improved decision-making and control algorithms, high-resolution sensor systems, semi-autonomous robotics, water-saving varieties and robust livestock breeds are increasing precision and efficiency and are therefore leading to higher yields and better resource conservation.
- c. Both are making farms and businesses more resilient to climate change and markets.

5. A valuation approach for biodiversity and animal welfare similar to that used for trading greenhouse gas emissions should be introduced.

- a. Research findings lead to the anticipation of the reliable qualification and quantification of species as a starting point for evaluation and then valorisation. Suitable animal welfare criteria can be developed by means of the automatic recording and AI-backed evaluation of animal-related indicators in the housing and on the slaughter line.
- b. In both cases, systems similar to those used in emissions trading can be developed with certain limitations.
- c. Two principles apply with regard to pricing: maintaining international competitiveness and realism with respect to the conflicting aims of productivity and resource conservation.

6. The 'sustainable productivity growth' initiative must come from the industry and business themselves. This is where the processes are implemented.

- a. The processes for sustainable productivity growth will be implemented on farms and in businesses.
- b. Businesses' competitiveness will be key to the long-term success of the processes in terms of productivity and resource conservation.

7. A productive and sustainable agricultural and food sector help stabilise social peace and serves as a key foundation for for open democratic societies.

- a. It produces affordable, high-quality food, maintains natural resources, plays an active role in rural areas and therefore strengthens public services and social peace.
- b. It fosters the economic resilience and independence of self-determined states.
- c. Social peace, an intact environment and the economic independence of the state are the prerequisites for open democratic societies.
- d. **This makes the economic sector, agriculture, the food sector and all of companies involved in the food value chain are therefore system-relevant!**

DLG. Progress and sustainability in the agricultural sector and the food industry

Founded in 1885 by the German engineer Max Eyth, DLG (Deutsche Landwirtschafts-Gesellschaft – German Agricultural Society) stands for productivity and resource conservation in a sustainable and innovative agricultural and food value chain. DLG's mission is to promote progress through the transfer of knowledge, quality standards and technology. DLG has over 31,000 members, and is non-profit, politically independent and internationally networked.

As one of the leading organisations in its sector, DLG organises trade fairs and events in the fields of agriculture and food technology and tests food, agricultural machinery and farm inputs. With its Competence Center for Agriculture and Food and the DLG-Verlag's media, DLG stands for the independent transfer of know-how. DLG additionally develops solutions to the challenges of the agricultural, agribusiness and food sectors in numerous national and international expert committees.

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