

Project Description

"Acceptance and Effects of Climate-Friendly Drives in Agriculture" (TrAkzeptanz)

Climate-friendly drives in agriculture can contribute to reducing greenhouse gases in crop production and thus achieve the climate protection goals of the agricultural sector. The overarching goal of the "TrAkzeptanz" project is to strengthen the acceptance of climate-friendly drives in agriculture, using the example of tractors, and to promote their increased use. Through various steps (current state analysis, analysis of opportunities and risks, investigation of acceptance and purchase motives, theoretical scenarios, and practical case studies), incentive mechanisms are developed to advance the transition to climate-friendly drives in agricultural crop production. These incentive mechanisms and the corresponding project results are communicated through appropriate formats to farmers, agricultural machinery dealers, industry, political and press representatives, and the general public.

Firstly, the development status of alternative drives for agricultural machinery and the regulatory framework conditions will be demonstrated through literature research and expert interviews. Building on this, surveys of stakeholders along the value chain will identify barriers and motivations for switching to climate-friendly drive technologies. Subsequently, scenarios will be created to illustrate the potential market penetration of renewable drive systems in agriculture up to the complete replacement of fossil diesel fuel. For these scenarios, the effects at the national level, particularly regarding GHG savings, GHG reduction costs, and the required energy and raw material demand, will be determined. If fossil diesel fuel were entirely replaced by sustainable climate-friendly drive energies, about 5 million tonnes of greenhouse gases ("tank-to-wheel") could be saved annually in Germany. Additionally, the effects of switching to climate-friendly drives will be examined at the operational level through case studies. Here, real agricultural enterprises will be modelled to transition to a mix of suitable drive technologies. The resulting economic and ecological impacts will be evaluated in comparison to the status quo. Finally, based on the preceding investigation steps and considering national and operational effects, incentive mechanisms will be developed to help drive the transition to climate-friendly drives in agriculture. The results of the project will be enriched and validated through the participation of various stakeholders in workshops and discussion rounds and then communicated in appropriate formats to farmers, agricultural machinery dealers, industry, politics, and the general public.

Specifically, the project aims to answer the following questions using the results:

- (1) What is the current state of technology for alternative drives for tractors, and where is the development heading?
- (2) What regulatory framework governs the development, marketing, and use of tractors with climate-friendly drives, as well as the provision of renewable drive energies?
- (3) What opportunities and risks for successful market penetration of alternative tractor drives are seen by different stakeholders?
- (4) How high is the acceptance of tractors with alternative drives among farmers?
- (5) What incentive mechanisms need to be created to increase the market penetration of tractors with alternative drives?
- (6) What contribution can agricultural enterprises make to achieving climate protection goals by using tractors with climate-friendly drives?

The questions are addressed by staff from the Chair of Marketing and Management of Renewable Resources at the Technology and Support Centre and the German Bioenergy Association. Thus, the project consortium consists of experts from various disciplines with extensive expertise in the proposed subject area, ensuring the successful implementation of the project.

Funded by the Federal Ministry of Food and Agriculture on the basis of a of the German Bundestag as part of the BMEL research and innovation programme Innovation Programme "Climate Protection in Agriculture". The duration is from 01/04/2024 until 31/03/2027.

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