



Transition paths to sustainable legume-based systems in Europe

## Sustainable crop rotations for soybean production in Southern Germany

Even though soybean poses low disease risk to subsequent soybean crops, unlike many other legumes, it should still be grown as part of a crop rotation with a cropping interval of at least three years. The rotation of crops can be very diverse in both organic and conventional farming.

Soybeans have a high value as a preceding crop, as they fix inert atmospheric nitrogen in biologically useful form. They also contribute to good soil structure due to their distinctive root system. In Southern Germany, cereals such as winter and spring wheat, winter barley, spelt and triticale have a very high share in the crop rotation with soybean. As a preceding and following crop, winter wheat is the most used. Due to its slow early development, soybean is poorly competitive against weeds. Therefore, a weed-suppressive and nitrogen-consuming crop (e.g. winter cereal or maize) is suitable as a preceding crop. The subsequent low nitrogen content in the soil stimulates soybean nodulation by rhizobia and supports improved nitrogen fixation. Soy diseases, like Sclerotinia stem rot and Diaporthe, or pests, like bean seed fly, currently have a minor impact in Germany. Nevertheless, cultivation breaks between Sclerotinia host plants (e.g. rapeseed or sunflower) should be at least four years.

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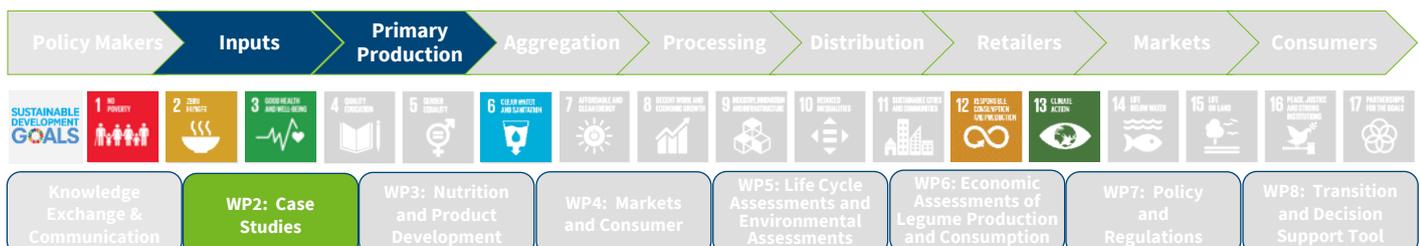
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Germany

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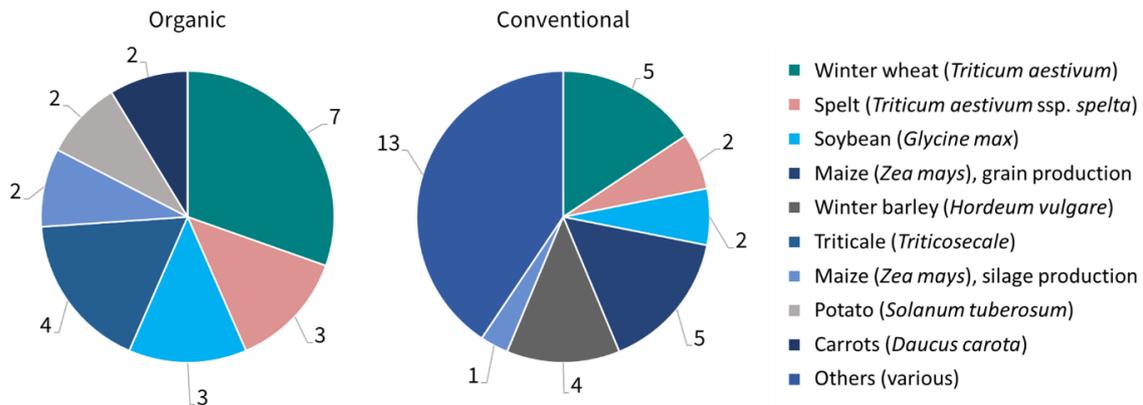
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**Figure 1.** Frequency of the preceding crop to soybean on organic (left) and conventional (right) farms in a survey of 17 farms (8 organic, 9 conventional) in South-West Germany in the years 2015 – 2017



**Figure 2.** Emergence (left) and mature (right) of Soybean. Photo credits ©: Sabine Zikeli



### About TRUE

The EU funded project "Transition paths to sustainable legume based systems in Europe" (TRUE) is a balanced practice-research partnership of 24 institutions, which aims to identify the best routes, or "transition paths" to **increase sustainable legume cultivation and consumption across Europe** and includes the entire legume feed and food value chains.

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