PRACTICE ABSTRACT N°7

Intercropping wheat and pea for on-farm pasta production

Problem

While traditional pasta has become a staple food worldwide, several public health strategies agree that their nutritional qualities could be improved. The quality improvement through the crop diversification has not been sufficiently studied in semi-arid climate and organic production.

Solution

Intercropping winter wheat with field pea in organic systems enables to increase the protein content of the cultivated cereal, and so its nutritional quality.

Benefits

Intercropping cereals with legumes in organic systems allows a better crop use of resources, brings a higher biodiversity in the agricultural landscape, and delivers ecosystems services (soil fertility and health, C sequestration and water regulation). These benefits can add extra value to the produced pastas.

Applicability box

Theme

Crop production, Food chain management.

Keywords

Intercropping, Crop management, Postharvest technology, Food processing and Food quality.

Context

South-Eastern Europe, temperate climate, rainfed conditions.

Application time

Autumn (October) to summer (June).

Required time

No additional time during cultivation of pure winter wheat crop. The harvested grains need to be separated and cleaned before milling.

Period of impact

One year

Equipment

Standard machinery for the winter wheat cultivation.

Best in

Low input/ organic agricultural systems.

Practical recommendations

Variety selection

- An early ripening wheat variety to match with a winter field pea variety. Make sure that the selected legume matches the harvesting period of wheat (e.g., Mraz in Serbia).

Seeding density

- Wheat at 70% and legume at 30% of their recommended sole-crop densities.

Seeding time

- 2-3 weeks after the optimum sowing date to avoid pest and diseases proliferation, especially in organic agriculture.

Weed control

- Usually not needed in autumn, but weeds can be controlled in spring by harrowing.

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Harvest

- Adjust the harvesting period of winter wheat and field peas to the same time frame and set harvester grain sieves to the pea size.

Sorting

- Use proper separation methods afterwards in order to leave as little pea seeds as possible (<5%).

Fig 1: Sowing intercrop winter wheat and field pea. Photo: Rada Šućur.

Fig 2: Intercrops of winter wheat and field peas. Picture taken during the stem extension phase of winter wheat. Photo: Srdjan Šeremešić.

Fig 3: Variety of on-farm produced pasta. Photo: Srdjan Šeremešić.

Further information

Video

- https://intercropvalues.eu/news/short-video-release-sowing-winter-wheat-and-field-pea/ (English)

Further readings

- Timaeus, J., Weedon, O. D., & Finckh, M. R. (2022). Harnessing the potential of wheat-pea species mixtures: evaluation of multifunctional performance and wheat diversity. Frontiers in Plant Science, 13, 846237.
- From theory to practice of species mixtures, 2022, EU-funded ReMix project
- Mischkulturen, bioaktuell.ch

Weblinks

- Intercropping of grain pea with cereals - legumehub.eu, 2021

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IntercropVALUES aims to exploit the benefits of intercropping to design and manage productive, diversified, resilient, profitable, environmentally friendly cropping systems acceptable to farmers and actors in the agri-food chain. As a multi-disciplinary and multi-actor project, it brings together scientists and local actors representing the food value chain. It includes 27 participants from 15 countries (3 continents) from a wide diversity of organizations and stakeholders. The project will run for four years and started in November 2022.

Project website: https://intercropvalues.eu/

Permalink: Organic-farmknowledge.org/tool/53678

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