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Sweet Oat - Vitality from Heritage Grains

www.viljalaari.fi

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Grow plants that cooperate

- **Landrace oats** are adapted to cultivation without easily water-soluble mineral fertilizers - they lodge with too much nutrients in the soil
- By growing landrace oats **organically**, we reduce the risk of nutrient emissions into waterbodies
- Finnish landrace oat is typically between 1-1.30 m high. Their **larger root system** provides **more carbon** in the soil. More carbon (organic material) means that the soil can **cope** better with **heavy rains** and **drought**.

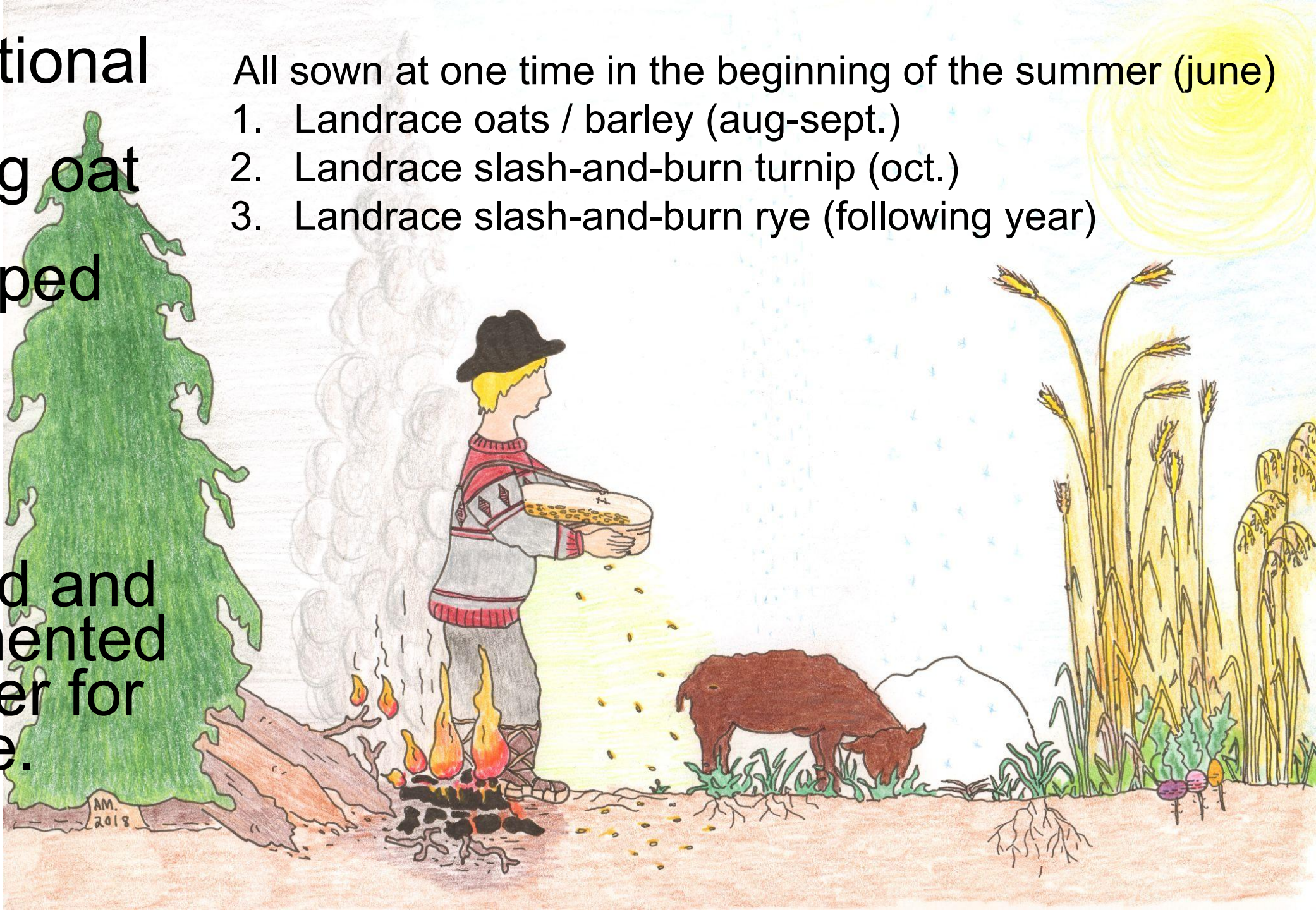


Our traditional way of cultivating oat was intercropped for food security.

Plants supported and complemented each other for resilience.

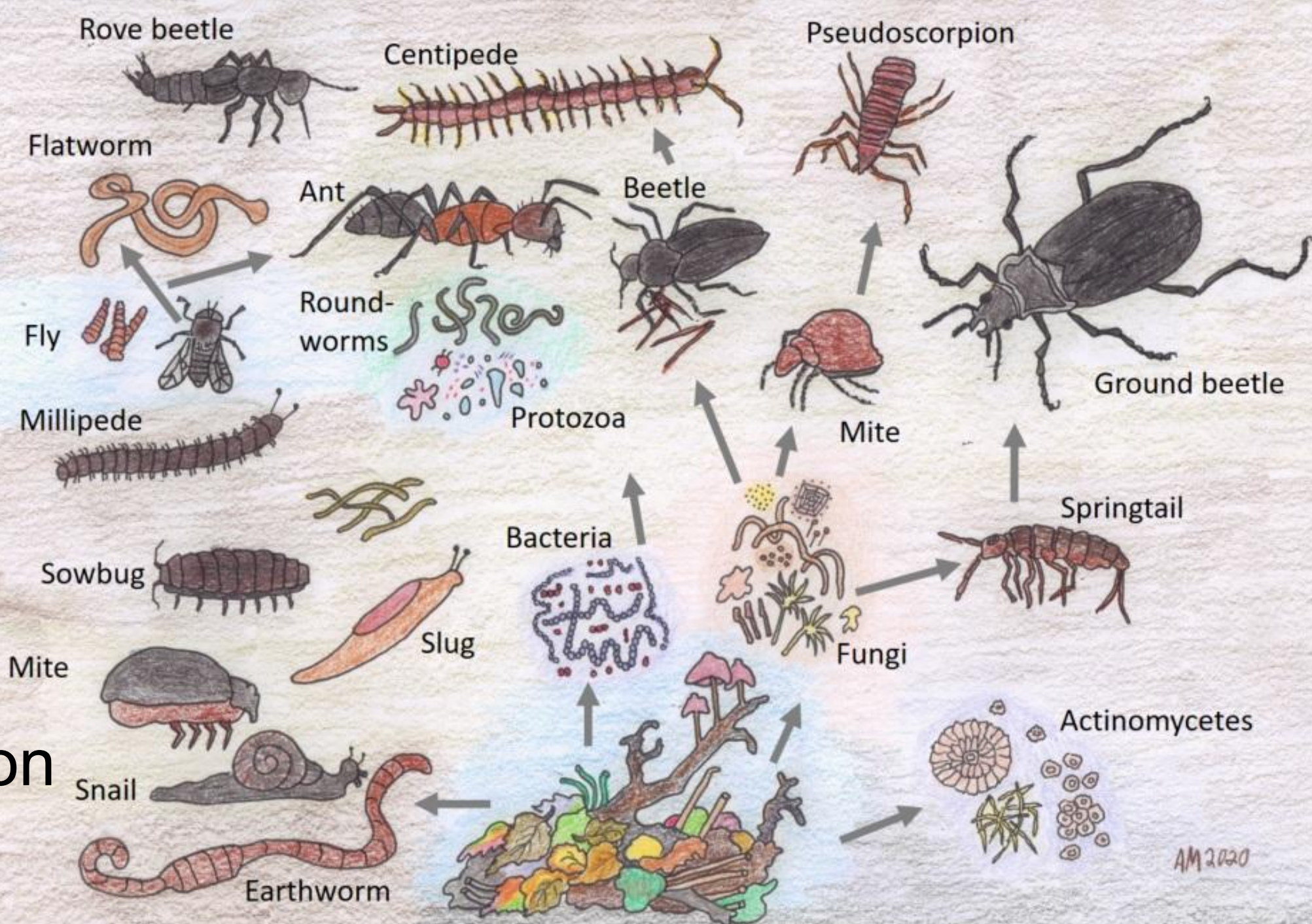
All sown at one time in the beginning of the summer (june)

1. Landrace oats / barley (aug-sept.)
2. Landrace slash-and-burn turnip (oct.)
3. Landrace slash-and-burn rye (following year)

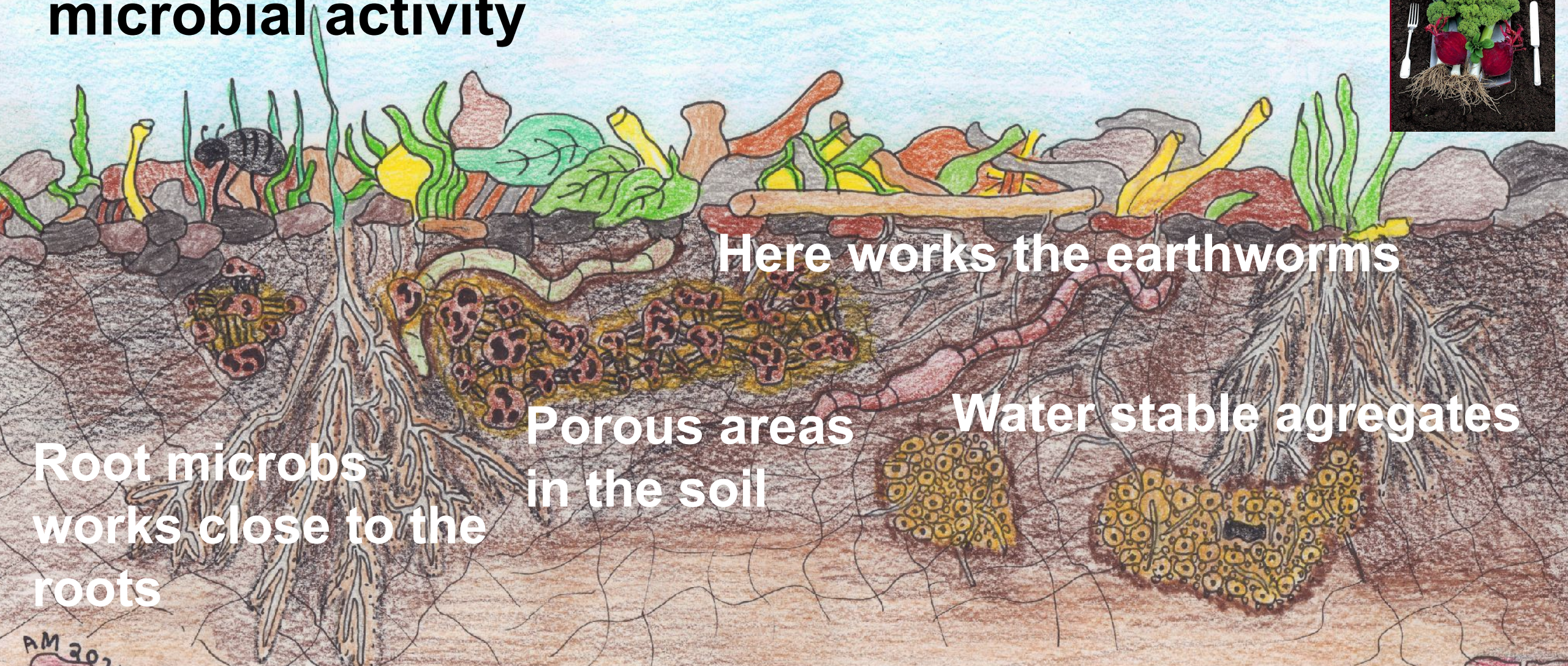
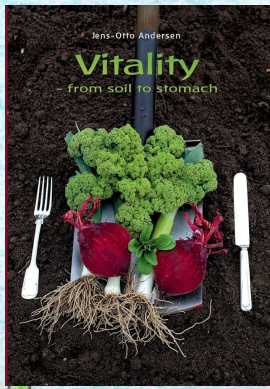


5% of the
soil is
living
organisms

We
recognize
our
collaboration
partners



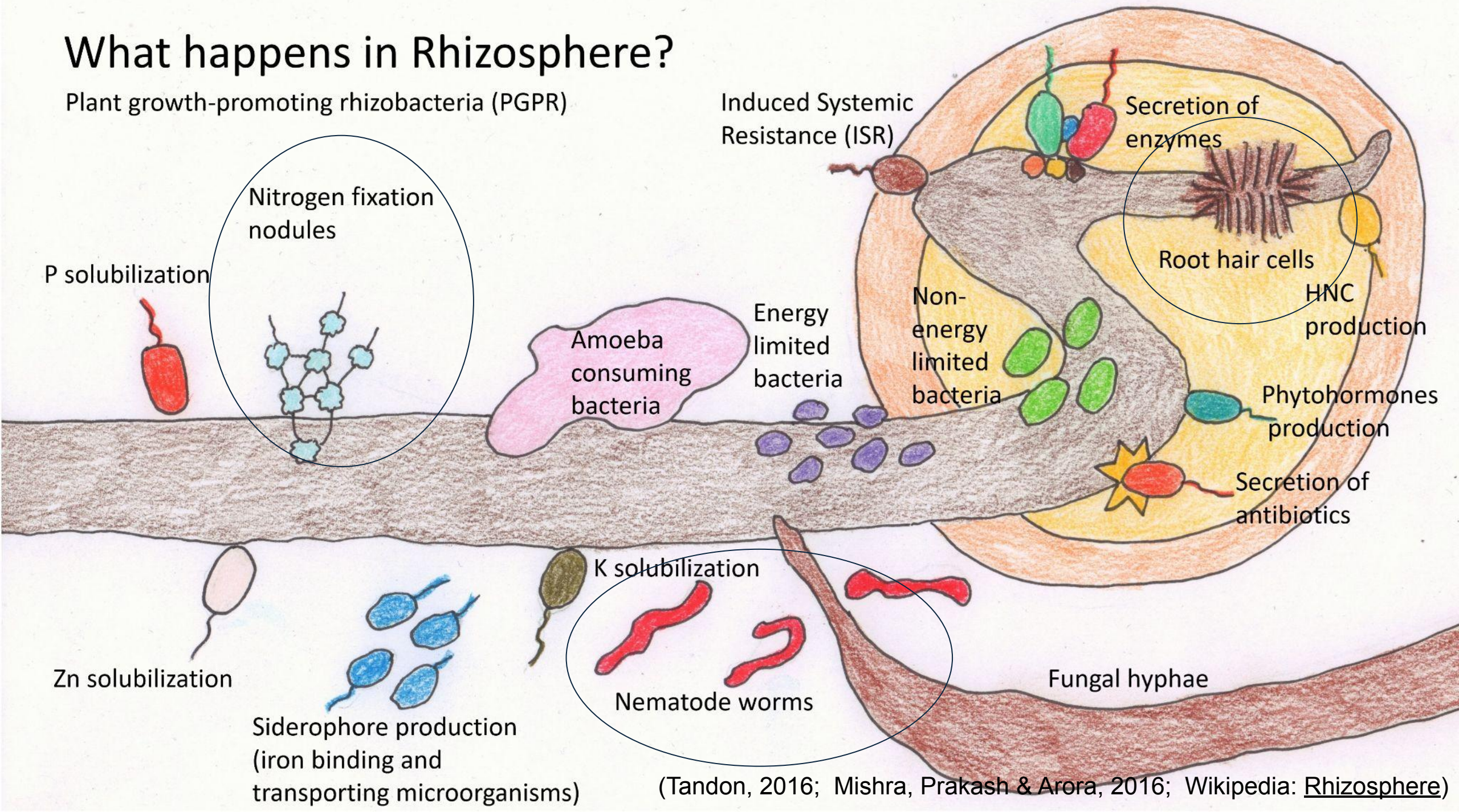
Dead organic matter supports high microbial activity



We improve the living environment for our partners

What happens in Rhizosphere?

Plant growth-promoting rhizobacteria (PGPR)



(Tandon, 2016; Mishra, Prakash & Arora, 2016; Wikipedia: [Rhizosphere](#))

A wide range
of partners
provide crops
with better
plant health
and greater
nutritional
content

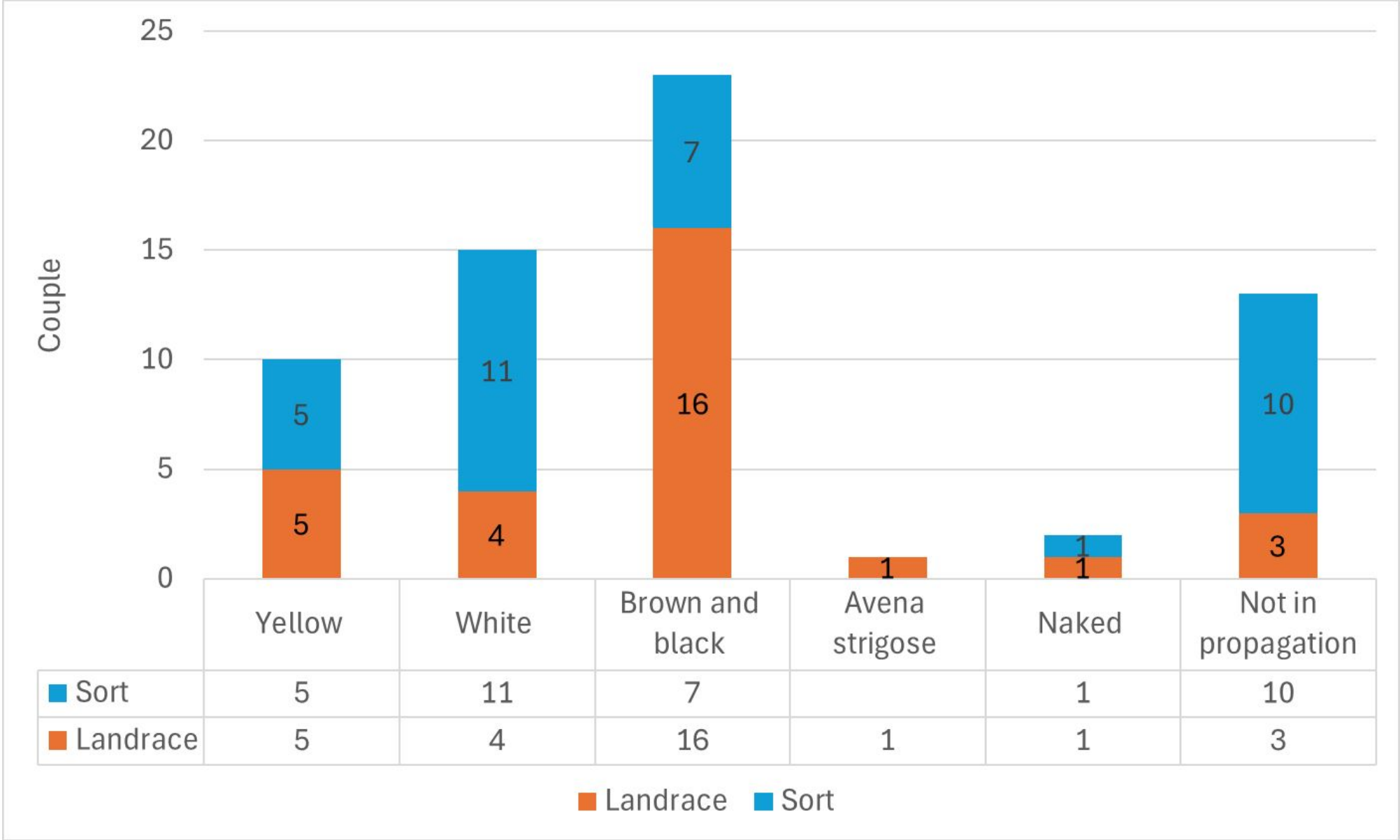
(Ekholm et al, 2007;
Loladze, 2024;
Michelson et al., 2024;
Zamaratskaia, 2021)



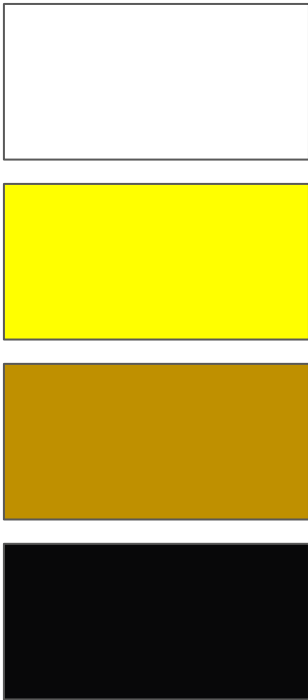


Five oats - two landraces (Ylitornio, Savitaipale), two old oat cultivars (Simo and Tammi) and one modern oats roots were photographed summer 2025. Photos. Indigo Weeglaghan, Luke (2025)

Finnish landrace oat (N27) & old cultivars (N24)



Natur
works
with
colors





Natur works with structures

Nopasa is Finland's second oat variety, a cross between Ligowo oats and the northern Swedish Norrbotten variety. The selection was made in 1909. Nopasa means fast and it still grows quickly and matures early. It has a great diversity in different types of panniculars.

(Gerhardt et al., 2018; Gerhardt, 2021)

We work
with diversity
in structure
and color
for better
resilience

The diverse
heritage grain field
is a forgotten
cultural landscape



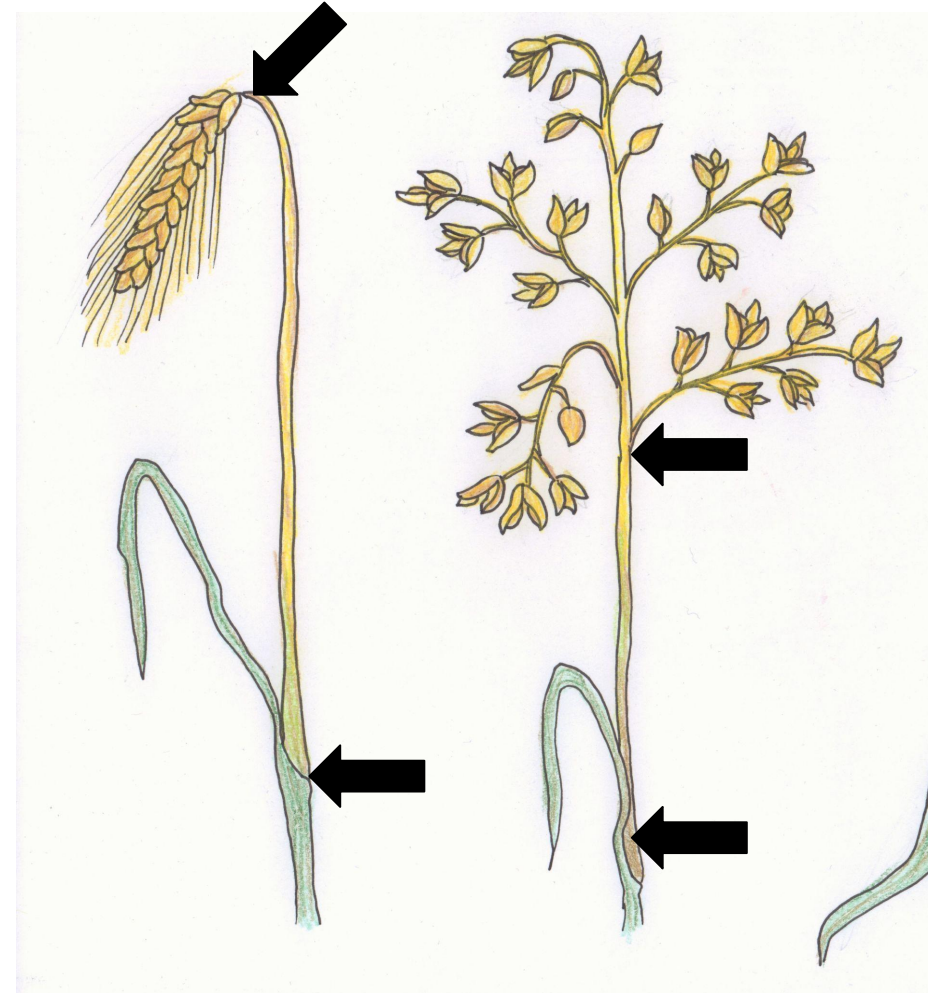
Adaptability measurement - how was it done?

ADAPTABILITY

(Michelson et al., 2024)

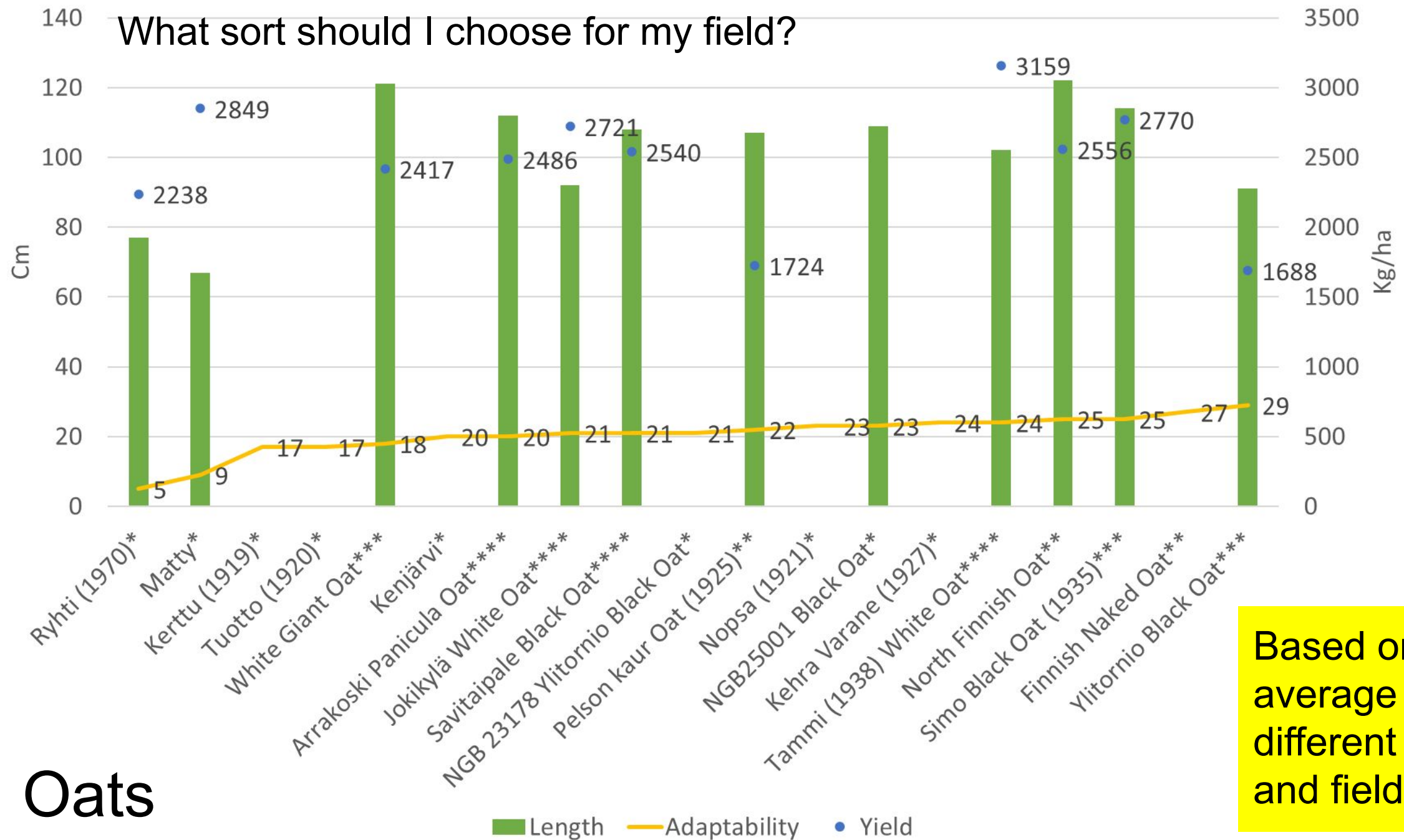
The length between the flag leaf (knot) and the ear of different varieties, in different fields and in different years was measured. The **difference** in length between the longest and shortest distance was calculated, and this is how the adaptability measure (in cm) was created. This measure can be an indication of genetic diversity of the grain, its transformation capacity and adaptability to climate change. Comparing the **adaptability measure** with the grain's straw **length** and **yield** gives tips on what to sow in your own field, depending on what problems there are with the soil, the growing location or the microclimate.

MEASUREMENT



Michelson, Annika; Heinonen, Maarit; Raiskio, Sakari, Raiskio, Kirsi & Pihava, Juha-Matti (2023). [Viljalaari - lisää monimuotoisuutta peltoon](#). Häme University of Applied Sciences, Natural Resources Institute Finland Diversity to fields project report. [Chapter 4. Usability criteria in Enlighs.](#)

What sort should I choose for my field?



Based on average from different years and fields

Oats

support
al
nomy
culture
a higher
ree of
iciency



Sources

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<https://www.facebook.com/groups/maatiaisviljat>