

Turnip Rape for On-Farm Biodiesel Production

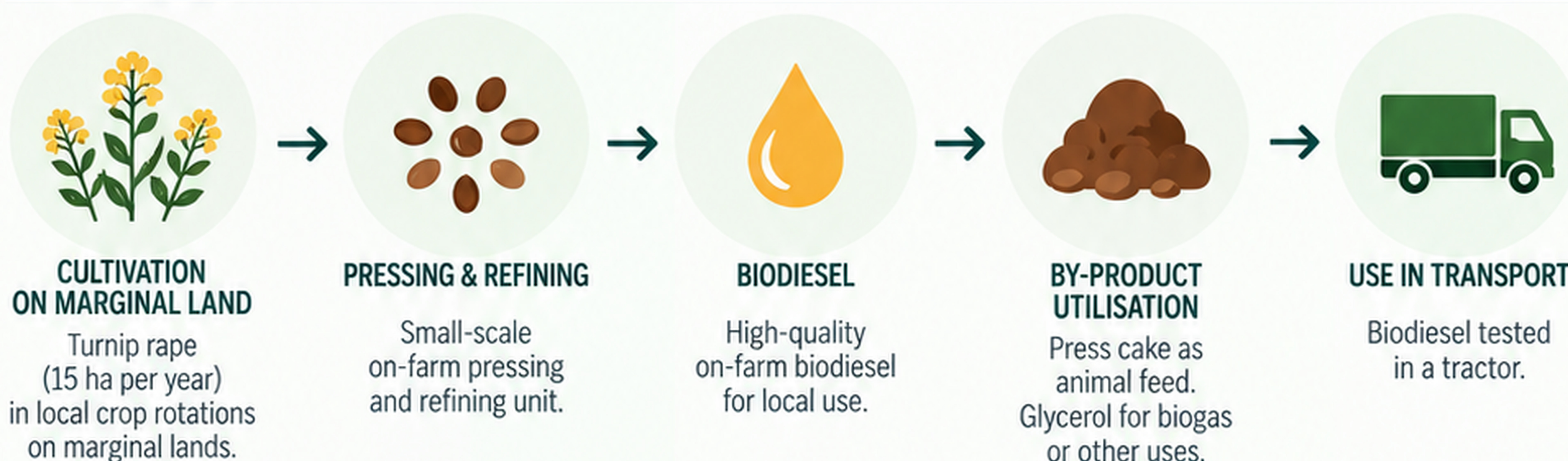
Local crops. Renewable energy. Stronger rural regions.

OBJECTIVE



Demonstrate how turnip rape can be integrated into local crop rotations on marginal lands in northern Sweden for producing on-farm biodiesel and valorising press cake as animal feed, contributing to rural energy self-sufficiency and fossil fuel reduction.

THE VALUE CHAIN



KEY FIGURES (2025)

1.5–2 t/ha
Seed yield (turnip rape)

450–600 L/ha
Biodiesel yield

TRL PROGRESSION



TRL 6 → TRL 7

On-farm biodiesel production unit

Fully automated and to better optimise the production process to be more reliable, precise and provide better quality and higher yield.

Scale / Capacity:
≈ 40,000 L yr⁻¹

MAIN RESULTS & STATUS

- ✓ Site preparation and sowing – **Completed** (M7)
- ✓ First seed harvest and yield assessment – **Completed** (M12)
- ✓ Installation of pressing unit – **Completed** (M18)
- ✓ Biodiesel production trials – **Completed** (M36)
- ✓ Press cake testing – **Completed** (M36)
- ✓ Tractor test – **Completed** (M41, 2026)
- ✓ Final demonstration – **Completed** (M48)

KEY GOALS & ACTIVITIES

- 1** Integrate turnip rape into sustainable crop rotations
 - Cultivate turnip rape (15 ha per year)
 - Monitor yield and soil quality
 - Best farming practices are evaluated (M48)
- 2** Develop on-farm biodiesel production
 - Install and optimise small-scale unit
 - Conduct training
 - Verify fuel quality
 - Reliable biodiesel unit achieving TRL 7 (M48)
- 3** Valorise by-products for circularity
 - Test press cake as animal feed
 - Assess glycerol use for biogas or other uses
 - Value chain evaluated (M48)
- 4** Demonstrate biodiesel use & sustainability
 - Test in a tractor
 - Monitor engine, consumption, energy and cost
 - Verified performance (M48)

LOCATION



Piteå region (Öjebyn Agro Park), Norrbotten and Skellefteå

GEOGRAPHICAL SCOPE



Regional

LEAD BENEFICIARY

RISE

KEY PARTNERS



Hushållningssällskapet (HS), RISE Processum, Ernsts Express, local farmers

ENVIRONMENTAL IMPACT & BIODIVERSITY



Feeding habitat for birds

Supports species such as the skylark (*Alauda arvensis*) and the white wagtail (*Motacilla alba*).



Pollination service

Provides habitat for pollinators such as the common carder bee (*Bombus pascuorum*).



Carbon sequestration

Increased root biomass and soil organic carbon contribute to climate change mitigation.

BENEFITS



Lower greenhouse gas emissions



Circular use of biomass



Rural jobs and income opportunities



Energy self-sufficiency