

Utilisation of old, extensive pig breeds for yellow nutsedge (*Cyperus esculentus*) control

R. Total¹, M. Schmid², M. Keller¹

¹Agroscope, Extension Gemüsebau; www.agroscope.ch, ² Landwirtschaftsamt Kanton Zug, Switzerland

Yellow nutsedge

- Causes high yield losses especially in vegetable crops.
- Propagation by tubers and seeds.
- Tubers in the soil can be controlled physically by steam or by free range pigs.
- Pigs dig the tubers up, ingest and digest them (MacDonalds et al., 2016). Modern race pigs seemed to become «lazy» with increasing weight in previous trials (Keller & Total, 2017).
- Old extensive pig breeds grow slowly and are known to be very active.

➤ **Research question:** Are old extensive pig breeds suited for yellow nutsedge control?



Figure 1: The pigs were very active. Vegetation was rapidly removed.



Figure 2: Turopolje and Mangalica pigs were used for the field trial. Not only yellow nutsedge, also other problematic weeds were present.

Material & Methods

- **Area:** 0.2 ha (pig area), 0.03 ha (control/no pigs)
- **Pigs:** 17, 10-15 kg at trial start (Figure 2)
- **Period:** 10 October 2019 to 28 May 2020
- **Observations (greenhouse data):** Soil samples were taken in the field before and after trial (pig and no pigs), put in the greenhouse. Yellow nutsedge shoots were counted after 8 weeks.
- **Observations (field data):** Yellow nutsedge shoots were counted in the field at 50 monitoring sites before and after trial.

Conclusions

- ✓ Considerable reduction of yellow nutsedge infestation by grazing old pigs breeds could be achieved.
- ✓ Old extensive pig breeds are suited for yellow nutsedge control. Reduction found was higher than in previous experiments.
- ✓ Effective, non-chemical and appealing approach!
- ✓ Further trials for validation of findings needed.

Results

- The pigs were very active in the field over the whole trial period (Figure 1).
- Greenhouse data: Reduction by 90% found (Table 1).

Table 1: Potential infestation of yellow nutsedge before and after the trial determined in the greenhouse. Means and SD are reported.

treatment	shoots m ⁻²		p-value
	before	after	
No pigs	95 (115)	145 (82)	0.58
Pigs	208 (116)	20 (24)	0.01

- Field data: Reduction by 54% observed (Figure 3).

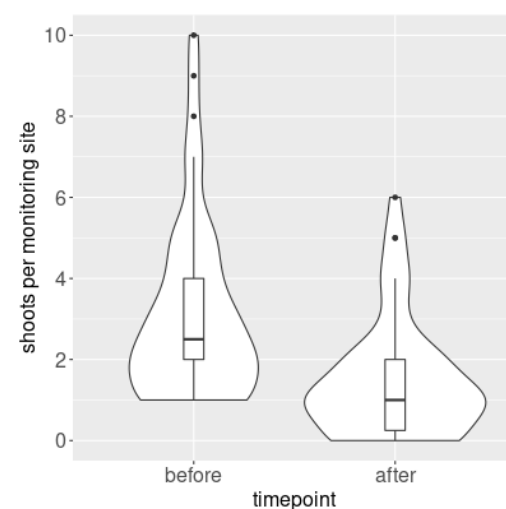


Figure 3: Observed number of shoots at monitoring sites in the field before and after the trial.



Unterstützt vom
Kanton Zug

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department of Economic Affairs,
Education and Research EAER
Agroscope