

ZERO KM FOOD FOR INSECTS

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INTRODUCTION

Most of the Phasmidae and some Orthoptera in captivity are fed with blackberry and oak leaves (Boucher and Varady-Szabo, 2005). In Riga Zoo, from May until November, we feed them with raspberry leaves. Due to the cold climate and lack of green leaves in winter, we grow oak sprouts (*Quercus robur*) indoors. In addition, wheat sprouts are used for growing locusts as food for other animals.

METHODOLOGY

Technique for growing oak sprouts (Fig. 1):

We plant approximately 0.7-1.0 m² of oak sprouts per week. The growing of young oaks takes place in a room with fluorescent lighting (day: night = 16:8 hours) at a temperature of +25 °C and daily watering with warm water. 5-6 weeks pass from the day of planting acorns to cutting sprouts. Oak sprouts are cut off when they reach a height of 25-40 cm

1. Collect 350-400 kg of acorns (end of September), sort them and store them at a temperature of 5 °C
2. Store acorns as one layer (8 cm) in low plastic boxes (measuring 60x40x11cm) with numerous ventilation holes (to prevent the development of mold)
3. Germinate (in winter) acorns in moist peat (acorns: peat = 5: 1) in plastic boxes (58x38x20 cm) at a temperature of 22-24 °C.
4. Select, once a week, germinated acorns with a root length >1 cm for planting.
5. Densely plant acorns in long planters with a peat substrate at 1.5-2 cm depth
6. In small pots (9x9x10 cm) plant 20 acorns a pot.

Wheat germination technique (Fig. 2):

We soak 6,9 kg grains of wheat 5 times a week. Each planted plot takes up an area of about 1.7 m². Sprouts are ready for feeding in 9-10 days.

1. Use wheat sprouts 10-15 cm long; the grain should be of good quality, seed (not fodder)
2. Pour water into the bowl with the grain, soak for 24 hours and drain excess water
3. Place the grain in a sieve covered with non-transparent polyethylene to remove excess moisture for 24 hours
4. Put expanded clay (size M) on 12 pallets (30x47 cm each) in a layer of 0.5-1 cm. Place and unveil the grain on expanded clay on all pallets. Water and cover with non-transparent polyethylene for another 24 hours.
5. Remove the polyethylene and water every day. The amount of water during watering depends on the length of the shoots. When the shoots will become long, start watering them from below, lifting the mats.



Figure 1. Developmental stages of oak sprouts

RESULTS

Oak shoots are cut and introduced into terrariums. Oak sprouts are placed in the terrarium in their pots; this technique is convenient for keeping newborn larvae. The pot with sprouts helps maintain a constant humidity level in the terrarium. This is particularly important for those species whose larvae do not tolerate spraying and excessive moisture. (e.g. larvae of *Phyllium* sp.). The pot is replaced only when the larvae eat all the leaves.

The wheat germination technique allowed us to cut 1,2 m² of wheat sprouts every day.

Diet based on wheat sprouts, oat flakes, bran and a minimal integration of apple, Chinese cabbage, carrot and pumpkin, the Insectarium grows about 45 kg/year of locusts (480 locusts a week).

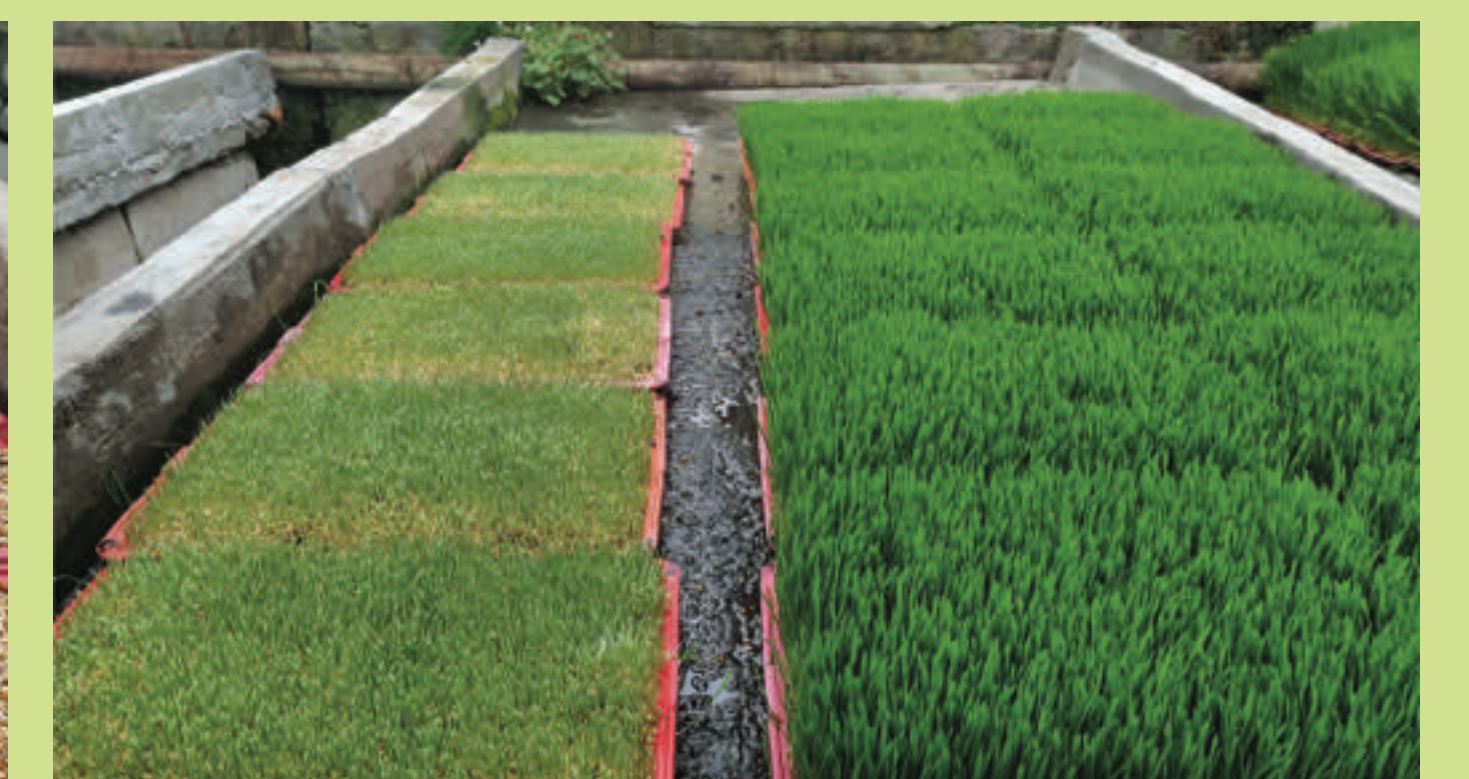


Fig. 2 Wheat germination

REFERENCES

Boucher, S., & Varady-Szabo, H. (2005). Effects of different diets on the survival, longevity and growth rate of the Annam stick insect, *Medauroidea extradentata* (Phasmatodea: Phasmatidae). *Journal of Orthoptera Research*, 14(1), 115-118.