

## **Improved weed control effect through prolonged germination period combined with false seedbed and delayed sowing**

### **Summary**

The aim of the project was to decrease the need of hand weeding in organic carrots by letting as many seed-propagated weeds as possible emerge before the crop through prolonged carrot germination time and by flaming the weeds at crop emergence. In controlled climate trials as well as in field trials, the influence on carrot seed germination time by different temperatures, sowing depths, seed size and coating was tested.

The carrot germination time was longer at lower soil temperature in controlled climate and the deeper they were sown. Emergence time differences between 2 and 4 cm sowing depth was larger at cold (9°C night, 15°C day) than warm climate (11°C night, 21°C day). In cold climate this difference was 2.8 days (25 degree days) compared to 1.0 in warm climate (15 degree days).

When sowing in peat at 2 cm depth in controlled cold climate compared to warm climate, 3.7 more days (but no difference in degree days) were needed until emergence begun. At 4 cm the difference was 5.5 days (11 degree days) for the same comparison. At 4 cm sowing depth in controlled climate, time until emergence was shortest for the largest carrot seeds followed by medium and then small seeds.

In the field trial at sandy soil, emergence differed 19.5 hours (30 degree days) between the fastest versus the slowest emerging carrots (2 cm sowing depth with medium and large carrot seeds versus 4 cm sowing depth with small carrot seeds). During this period the number of weeds increased by around 30 %.

Seed coating resulted in 11 more degree days until the beginning of emergence in controlled climate. In the field trial with different coatings, there was a 64 degree days difference between the coating with the slowest versus fastest (uncoated) start of emergence.