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Use of agronomical techniques to manage rape winter stem weevil (Ceutorhynchus picitarsis) and cabbage stem flea beetle (Psylliodes chrysocephala) populations in winter oilseed rape.

Celine Robert
C. LEGALL, C. PONTET, V. LECOMTE, M. GELOEN, S. CADOUX, G. SAUZET, L. RUCK

Terres Inovia, Thiverval-Grignon, France

Winter oilseed rape (WOSR) is a main cultivated crop in France (1.5 million hectares). It is attacked by several pests belonging to Coleoptera. Nowadays, pest management is more and more difficult due to different reasons including the fact that several insects' populations have developed resistance to insecticides and that the number of available insecticides is lower and lower. This management is especially problematic for two autumn pests: the rape winter stem weevil (Ceutorhynchus picitarsis) and the cabbage stem flea beetle (Psylliodes chrysocephala).

In the last years, Terres Inovia has set up trials, in the main French areas, to compare the benefit of agronomical techniques such as mixing WOSR with frost sensitive legume crops or fertilizing in the autumn.

We showed that the quality of the crop establishment is a necessary condition for the crop to be able to face autumn pests attacks. In our trials, frost sensitive legume crops showed interesting results when their biomass before winter was higher than 200 g/m2. In these conditions, the number of flea beetle larvae and the percentage of bushy plants were lower in WOSR associated with legume crops.

We also confirmed the relationship between the percentage of bushy plants and the crop biomass before winter : above a biomass of 1.2-1.5 kg/m2, the harmfulness of rape winter stem weevils and cabbage stem flea beetles is reduced. However, more than the biomass, pest harmfulness is lower when the crop have a quick and continuous growth in the autumn and at the beginning of spring. Mixing WOSR with frost sensitive legume crops or fertilizing helps to achieve this growth objective.

Finally, this work shows that the cumulation of several techniques (early sowing, nitrogen supply, intercropping with a frost-sensitive legume crop and insecticides) gives the best results both on the yield and on the margin. However, no significant differences is seen on the yield or the margin between strategies with insecticides and strategies with only agronomical techniques (and no insecticide).