

# The painted lady in soybean production

## Soybean pest scouting



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The painted lady (*Vanessa cardui* L.) is a pest of soybean in Serbia and many countries in south-eastern Europe (Croatia, Bosnia, Hungary, Romania, Bulgaria). It occurs also in central, western and northern Europe (Austria, France, Germany). This pest appears occasionally, typically once in four to five years, when it can be of economic importance. It can cause severe damage in high infestation years with more than one third of the leaf canopy eaten. However, spraying with insecticide is only rarely required or economically justified.

### Life cycle

The painted lady is a migratory species originating from Africa and the Mediterranean. It migrates from North Africa to northern Europe in May and June. The size and shape is similar to other butterflies. The wings are variegated reddish-brown and covered with black and white spots. Light green, oval eggs are laid on leaves. Grown-up caterpillars are 40 mm long, hairy and dark brown in colour, with two yellow lines on the sides. The pupa is 20 mm long and silver-brown in colour or coppery sheen. They are found on the injured leaves.

### Applicability

**Theme:** Crop care measures

**For:** All soybean growers

**Where:** Where soybean is planted

**Timing:** End of May - July

The whole migration is made by a succession of generations, up to six in a year. The settling of adults in a location depends on weather conditions such as wind direction that affect the migration path and length. The first arriving butterflies can be seen in early spring. After mating, the females lay around 500 eggs on the leaves on a wide range of plants. Various species of thistle are the best-known hosts providing nectar for the adults and leaves for the caterpillars. The wider range of hosts includes soybean. After arriving in May and June, two generations can result in sporadic infestations of soybean. The highest abundance of caterpillars occurs during June and July.



Painted lady caterpillar. Photograph: IFVCNS





Painted lady pupae. Photograph: IFVCNS

Only the caterpillars are harmful to soybean. They eat the leaf tissue between the leaf veins. Large infestations may cause complete defoliation. Damaged leaves are tied together in web-forming larval nests from which the young butterfly emerges from pupae. Infestation in crops is usually patchy and localised. The soybean is only one of many hosts and it is often the presence of wild hosts in the field that triggers infestation. It is important that other host species, thistles in particular, are removed within soybean crops if infestation is expected from migrating adults.



Damage on leaf made by painted lady. Photograph: IFVCNS

Control is rarely necessary in practice. The need for control measures can be assessed about one week in advance of an infestation by the presence of adult butterflies that are settling in a location to mate and lay eggs. This provides time to plan treatments which might involve obtaining special permission to use insecticides. An average of two or more recently-hatched



Painted lady butterfly. Photograph: IFVCNS

caterpillars per plant, or 20 caterpillars per row metre of soybean, or the observation of two nests of infestation within 100 m<sup>2</sup> is the economic threshold. The condition of the canopy and the stage of development of caterpillars should be considered. Plants with already developed canopy are more tolerant to damage while younger caterpillar instars are more susceptible to insecticides and most of the damage is yet to be made. Sometimes, control can be confined to crop margins or to patches in the crop.

Predicting infestation from the presence of recently arrived and settling adults at the local level is important. Only a few insecticides are approved for control. As this pest occurs only occasionally, no products are registered in several countries for this purpose. In these cases, exceptional use may be admitted on demand (e.g., for *Bacillus thuringiensis* in Germany). This demand should be organised by a plant protection service or a cooperative in advance, as treatment is worthwhile if the caterpillars are still young. Treatment of large caterpillars is ineffective, as they will stop feeding soon and the damage has already occurred.

### Key practice points

- Fields should be scouted regularly and systematically for the presence of adult butterflies, eggs and caterpillars.
- Control measures should only be taken where a caterpillar population approaches an 'economic' threshold. Treatment is not justified in the case of most infestations (presence of caterpillars below economic threshold).

- When chemical control is needed, apply the lowest effective amount of the pesticide using equipment that is properly calibrated. Sometimes it is possible to localise treatment to only infested parts of crops.

## Further information

- Bundesanstalt für Landwirtschaft und Ernährung (BLE), Ökolandbau - Distelfalter (Vanessa cardui), website: [www.oekolandbau.de/landwirtschaft/pflanze/grundlagen-pflanzenbau/pflanzenschutz/schaderreger/schadorganismen-im-ackerbau/distelfalter-vanessa-cardui/](http://www.oekolandbau.de/landwirtschaft/pflanze/grundlagen-pflanzenbau/pflanzenschutz/schaderreger/schadorganismen-im-ackerbau/distelfalter-vanessa-cardui/)
- Butterfly Conservation. Painted Lady, website: [www.butterfly-conservation.org/butterflies/painted-lady](http://www.butterfly-conservation.org/butterflies/painted-lady)

## Sources

Information shared in this practice note results from the trials and studies carried out by the Institute of Field and Vegetable Crops Novi Sad, Serbia.

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