

Selective Feeding Blockers

Question: *What are selective feeding blocker insecticides?*

Answer: Selective feeding blockers or inhibitors are a class of insecticides that have a broad or physical mode of action, which prevents insects from feeding by interfering with neural regulation of plant fluid intake in the mouthparts. Selective feeding blockers may also inhibit stylet insertion into the plant; thus preventing insects from obtaining nutrients, resulting in starvation. Selective feeding blockers are active on certain phloem-feeding insects in the order Hemiptera such as aphids, leafhoppers and whiteflies. Selective feeding blockers have activity against the young and adult stages, and they very rapidly inhibit feeding. For example, aphids will stop feeding within hours, although they will remain alive for two to four days. In addition, selective feeding blockers may inhibit

transmission of viruses vectored by aphids.

Selective feeding blockers have no activity on flies (Diptera), beetles (Coleoptera) and caterpillars (Lepidoptera). They have both systemic and translaminar activity, and may provide up to three weeks of residual activity. The two selective feeding blocker insecticides available for use in greenhouse production systems are Endeavor (Syngenta Crop Protection) and Aria (FMC Corp.).

Endeavor contains the active ingredient, pymetrozine, which is an azomethine pyridine compound with contact and stomach poison activity that moves both up (xylem) and down (phloem) the plant similar to spirotetramat (Kontos). Endeavor has a unique mode of action that involves the neurotransmitter serotonin. Endeavor has a 12-hour

restricted entry interval (REI) and is a Group 9B based on the IRAC (Insecticide Resistance Action Committee) designation. The insecticide is labeled for control of silverleaf whitefly (*Bemisia argentifolii*), greenhouse whitefly (*Trialeurodes vaporariorum*), green peach aphid (*Myzus persicae*) and melon aphid (*Aphis gossypii*) at rates of 2.5 to 5.0 ounces per 100 gallons. Endeavor is labeled for use as a foliar spray. Although insects may remain on plant surfaces for two to four days; insects stop feeding within hours after application. Reports indicate that Endeavor is not harmful to certain biological control agents, including: rove beetles, minute pirate bugs, green lacewings and certain predatory mites. Furthermore, Endeavor is not directly harmful to honeybees and bumblebees.

Aria contains flonicamid as the active ingredient, and is a

trifluoromethylnicotinamide class insecticide that also appears to affect the voltage gated potassium channels. Aria is labeled for use against aphids, thrips, whiteflies and mealybugs.

Rates vary from 0.7 to 4.3 ounces (20 to 120 grams) per 100 gallons depending on the specific target insect pest due to differential susceptibility both within and among insect types. Insects stop feeding within

30 minutes; however, be sure to wait at least five days after treatment to evaluate efficacy. Aria has a 12-hour REI and is Group 9C according to the IRAC designation. It should be noted that certain pansy cultivars may be sensitive to Aria treatments. Therefore, always test the insecticide on a small number of different pansy cultivars before spraying the entire pansy crop. This insecticide is not directly harmful to a number of biological control agents including: the mealybug destroyer, *Cryptolaemus montrouzieri*; and the parasitoids, *Leptomastix dactylopii* and *Eretmocerus mundus*.

Rycar is a new insecticide from SePRO with the active ingredient, pyrifluquinazon, that is labeled for use against aphids, whiteflies, thrips, mealybugs and scales. The insecticide has contact and ingestion activity, and translaminar properties. Rycar has a 12-hour restricted entry interval. The insecticide modifies insect behavior by rapidly halting feeding; thus leading to insects starving. Consequently, Rycar may have the same mode of action as Endeavor and Aria, although this has not been proven quantitatively.

The mode of action of selective feeding blockers is less prone to insects developing resistance in the short term. However, continued use of this mode of action for extended periods of time may eventually reduce the effectiveness of selective feeding blocker insecticides. Therefore, greenhouse producers need to exercise proper stewardship and apply insecticides with different modes of action in between using a selective feeding blocker within a rotation program in order to avoid any issues associated with resistance. [gpn](#)

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