

SOYBEAN APHID MANAGEMENT AND INSECTICIDE RESISTANCE

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Soybean aphid remains a significant pest of soybean, especially in Minnesota and parts of neighboring states. For about two decades, this pest has been managed primarily with insecticides. Multistate research was used to develop guidance for scouting and decision making for insecticide applications against soybean aphid. However, the continued reliance on insecticides for management of this pest has resulted in the development of insecticide resistance in soybean aphid and concerns about environmental contamination from these insecticides.

Because other management tactics (e.g., aphid-resistant varieties) for soybean aphid are limited in availability, the agricultural community must work together to preserve the effectiveness of and continued access to effective insecticides for protection of soybean from this pest. Judicious, IPM-based (i.e., scouting and thresholds) use of insecticides can provide multiple benefits including continued protection of yield, reduced selection for insecticide resistance, and reduced environmental contamination.

Recent survey results from Minnesota farmers and agricultural professionals indicate that most individuals use and trust the research-based threshold of 250 aphids per plant to determine when to apply insecticides. Among factors contributing to distrust of the threshold by some individuals is a perception that the threshold is too high or that yield loss can occur before 250 aphids per plant. Therefore, continued review and better explanation of concepts such as the economic threshold, damage boundary, and economic injury level are required. Along with continued validation of the threshold with field research.

The development of insecticide resistance in soybean aphid has complicated management of this pest. Caution must be taken in insecticide selection, because resistant populations are widespread, but do not necessarily occur in all fields. Several new insecticides provide effective control of soybean aphid and are less impactful to natural enemies, but are less familiar to growers and consultants. In addition, scouting is required after insecticide applications to ensure the desired efficacy of the application was achieved. Finally, if another insecticide application is required, it is important to alternate to a product from a different insecticide group, but insecticide resistance has limited the number of products available for such alternations.

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