

Corn gluten meal tested on squash survival, yields

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Corn gluten meal, a powdery byproduct of the wet-milling process of corn, has shown important potential for use as an organic, non-selective preemergence or preplant-incorporated herbicide. A team of researchers from the U.S. Department of Agriculture-Agricultural Research Service and Oklahoma State University recently reported on the impact of corn gluten meal (CGM) applications on direct-seeded squash (*Cucurbita pepo*), and determined that CGM can be effective and safe if used in banded applications.

Used for years as a supplement in dog, fish, and livestock feed, corn gluten meal offers a non-toxic yet effective alternative to traditional, chemical-based products for weed control in lawns and gardens. The development of a mechanized application system for the banded placement of CGM between crop rows (seed row not treated) has increased its potential use in organic vegetable production, especially in direct-seeded vegetables. Charles L. Webber III, James W. Shrefler, and Merritt J. Taylor authored a study in [HortTechnology](#) that determined the impact of CGM applications (formulations, rates, incorporation, and banded applications) on direct-seeded squash plant survival and yields.

The research revealed that that neither CGM formulation (powdered or granulated) nor incorporation method (incorporated or non-incorporated) resulted in significant differences in plant survival or squash yields. "There was no significant difference between powdered and granulated CGM formulations or incorporating CGM and leaving CGM on the [soil surface](#) (no incorporation) for squash plant survival or

yields. These results are consistent with earlier reports with vegetables, although previous research did not investigate broadcast versus banded applications", noted the authors.

According to the scientists, this research proved that CGM applications can be safely used if applied in a strip between vegetable rows. "The banded application—CGM placed between rows—resulted in significantly greater crop safety than the broadcast, or non-banded, applications", they explained. "Before this research, it was determined that CGM was phytotoxic when used as a preplant or a preplant-incorporated organic herbicide. It was also known that as a non-selective material, CGM would not only kill and inhibit weed growth, but also would negatively impact direct-seeded crop establishment, seedling vigor, and yields."

Previous research also suggested that CGM applications be restricted to established crops (turf and transplants) rather than direct-seeded vegetable crops. "Our research determined that a CGM-free planting strip (CGM applied between crop rows) provided increased crop safety for direct-seeded squash compared with broadcast applications," noted corresponding author Charles Webber.

Webber added that the research has implications for all direct-seeded organic vegetables "once optimum CGM application rates and CGM-free strip width can be determined for specific vegetables to maximize crop safety, yields, and weed control efficacy."

More information: The complete study and abstract are available on the ASHS HortTechnology electronic journal web site:
[horttech.ashspublications.org/ ... nt/abstract/20/4/696](http://horttech.ashspublications.org/...nt/abstract/20/4/696)

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