



Transforming Agriculture, Perennially

Date: January 18, 2022

To: Current and prospective Kernza® perennial grain growers, buyers, and stakeholders

From: Kernza® Multi-State Agronomy Technical Assistance Team

Subject: Herbicide approval (2,4-D Amine) for Intermediate Wheatgrass (IWG) grain production (Kernza®), recommendations, discussion

Introduction

In late 2021, the first broadleaf herbicide was approved for use on IWG for grain production (e.g. Kernza): a 2,4-D Amine product from Nufarm, Weedar 64. This memo provides background information, recommendations for growers, and discusses implications of new weed management tools for Kernza® grain production

To date, weed management has been narrowed to site selection (fields with little weed pressure), mowing, narrow-row planting, and tillage between rows. Annual weeds are an issue in year one but are then mostly outcompeted in subsequent years. Weed pressure generally decreases in second and third year stands as the crop becomes well established and more competitive. However, as stands age (>4 years), weed pressure can increase again and require management. For comprehensive descriptions of management techniques, please refer to the March 2019 document “Approaches to Managing Intermediate Wheatgrass for Dual-Use Forage and Kernza® Perennial Grain Production” which can be found at kernza.org/growers.

Additionally, a technical assistance team has been organized around Kernza and these providers have experience managing weeds without the use of herbicides. You can interact with them using the information in the table below.

Background

Prior to Jan 2021, no herbicides or pesticides were approved for use on IWG/Kernza for grain production. Although a perennial grass such as IWG is expected to tolerate common broadleaf herbicides used in small grain crops such as barley, oats, and wheat, no IWG had gone through the rigorous regulatory process required to have it listed for use in grain production.

The IR-4 Project was established in 1963 by the U.S. Department of Agriculture to ensure that specialty crop farmers have legal access to safe and effective crop protection products.

IR-4 research takes place at many land grant universities and USDA Agriculture Research Service facilities across the country. Regional field offices and state liaisons also work with local growers to identify safe and effective solutions for pest management.

Recommendations for growers

The institutions developing Kernza as well as their technical assistance staff continue to hope and build toward a low/no-input system where Kernza can be grown without the use of chemical pesticides or fertilizer. However, we also recognize the utility of the approach of herbicide use for some growers whose production practices prohibit the use of tillage or other



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non-chemical means of weed management. The technical assistance team will continue to support organic producers and those choosing organic production practices at the highest level.

A 2,4-D amine herbicide, Nufarm's Weedar 64, was approved for use in Intermediate Wheatgrass starting in the 2022 growing season. At this time, only Weedar 64 from Nufarm has Intermediate Wheatgrass on-label, not all or any other 2,4-D products. Several other 2,4-D products and other herbicides are undergoing the approval process, but until they are listed on-label, they are not approved for IWG/Kernza grain production.

The use of Weedar 64 (2,4-D amine) in Kernza is much more restricted at this time than in most other grain crops. Only a single application per season can be made on Kernza destined for grain production, and that application can be made only in spring. It cannot be applied in summer, autumn or winter. Furthermore, spring applications can be made only after Kernza seedlings have tillered (4"-8" tall), but before the boot stage of growth. (The boot stage is when the flower heads are invisible, but you can see and feel their swelling inside the sheaths of the soon-to-be flowering stems.) Do not apply 2,4-D amine before or after these developmental stages.

The exact times depend upon an interaction between daylength and growing degree days, which varies each year and across regions.

How much 2,4-D amine can be applied? Not much. Only a single application of 2,4-D amine can be made per year to Kernza. The rate of application also is relatively low; the maximum rate is 1 pound of "acid equivalent" (ae) product per acre. For most 2,4-D amine herbicides, such as Nufarm's Weedar®64, this maximum amount is equivalent to 2 pints of product per acre. Naturally, lower rates can be used. But, still, only one application per year is allowed. Regardless of the rate that is used, for ground applications of 2,4-D amine, the herbicide should be mixed with 10 to 15 gallons of water on an acre basis.

Lower rates of 2,4-D amine may be appropriate depending upon the types and sizes of weeds present. That is, if sensitive broadleaf weeds are very small (cotyledon to 1-leaf stage of growth), a low rate of the herbicide can be used. However, rates lower than 1/2 pint per acre (1/4 lb ae per acre) are not recommended, unless legumes were underseeded purposefully with the IWG for Kernza production. In that situation, the labeled rate of 2,4-D amine is 1/4 to 1/2 pint per acre (1/8 to 1/4 lb ae per acre).

In summary, 2,4-D amine is labeled for used in Kernza grain production, but remember that it can be applied only once per year, only in spring, only between tillering and the boot stage of growth, and only up to a rate of 2 pints per acre (1 lb ae per acre). Kernza technical assistance providers recommend producers check their product labels and follow them accordingly.



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Implications

- Widening range of weed management tools to reduce failure in Y1, maintain yield, boost efficiency in processing
- Approval may further advance adoption by conventional growers and buyers, expanding the supply and demand for Kernza, advancing goal of a perennial grain landscape
- Kernza® community includes a range of perspectives all seeking to advance perennial grains
- Organic growers are committed to maintaining dedicated, transparent organic Kernza® supply chain for growers, buyers, and customers aligned with these values

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