US011371055B2

(12) **United States Patent**
Wright et al.

(10) **Patent No.: US 11,371,055 B2**
(45) **Date of Patent: *Jun. 28, 2022**

(54) **HERBICIDE RESISTANCE GENES**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 217 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **15/468,494**

(22) Filed: **Mar. 24, 2017**

(65) **Prior Publication Data**

US 2017/0211087 A1 Jul. 27, 2017

Related U.S. Application Data

(63) Continuation of application No. 14/491,197, filed on Sep. 19, 2014, now Pat. No. 10,167,483, which is a continuation of application No. 13/647,081, filed on Oct. 8, 2012, now Pat. No. 8,916,752, which is a continuation of application No. 12/091,896, filed as application No. PCT/US2006/042133 on Oct. 27, 2006, now Pat. No. 8,283,522.

(60) Provisional application No. 60/731,044, filed on Oct. 28, 2005.

(51) **Int. Cl.**
C12N 15/82 (2006.01)
C12N 9/02 (2006.01)

(52) **U.S. Cl.**
CPC ***C12N 15/8274*** (2013.01); ***C12N 9/0069*** (2013.01); ***C12N 9/0071*** (2013.01); ***C12N 15/8275*** (2013.01); *C12Y 113/11* (2013.01)

(58) **Field of Classification Search**
CPC C12N 9/0071
See application file for complete search history.

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(57) **ABSTRACT**

The subject invention provides novel plants that are not only resistant to 2,4-D, but also to pyridyloxyacetate herbicides. Heretofore, there was no expectation or suggestion that a plant with both of these advantageous properties could be produced by the introduction of a single gene. The subject invention also includes plants that produce one or more enzymes of the subject invention "stacked" together with one or more other herbicide resistance genes. The subject invention enables novel combinations of herbicides to be used in new ways. Furthermore, the subject invention provides novel methods of preventing the development of, and controlling, strains of weeds that are resistant to one or more herbicides such as glyphosate. The preferred enzyme and gene for use according to the subject invention are referred to herein as AAD-12 (AryloxyAlkanoate Dioxygenase). This highly novel discovery is the basis of significant herbicide tolerant crop trait and selectable marker opportunities.

33 Claims, 3 Drawing Sheets

Specification includes a Sequence Listing.

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