

TITLE 360 INDIANA

Cost Benefit Analysis LSA Document #18-443

Estimated Number of Businesses Subject to this Rule:

The Office of Indiana State Chemist (OISC) estimates that 300 permitted seedsmen could be subject to this rule. In addition, up to 25 out of state seed suppliers could be impacted by this rule. As part of this rule change and update, OISC would like to reduce regulations to eliminate weed species that are no longer a problem in modern agriculture. So at the time of adding an extremely noxious family of weeds we will be asking to eliminate weeds that no longer cause an economic impact to the farmers and citizens of Indiana.

Pollinator/native seed companies of which we have less than ten in Indiana typically sell seeds that could possibly contain the Amaranthus species. These permitted seedsmen are already in compliance with the Indiana noxious weed seed list, so they would incur no additional regulatory burden.

Additionally, these Indiana regulated companies hand rogue their seed plots so they are very unlikely to have these weed seeds in their lots of seed.

Out of state seed suppliers are more likely to have Amaranthus weed seed in their mixes since they are typically much larger producers and cannot effectively hand rogue their fields.

Since we do find Amaranthus seeds also in commercial feed and bird feed, it is possible that some of these manufacturing facilities will adjust business practices in a minor way. Each of these facilities is currently regulated under the Indiana Commercial Feed Law and will not have an increased burden, as each are currently working under the Indiana Noxious Weed seed law.

Estimated Average Annual Administrative Costs:

There should be no additional Administrative costs for seed distributors. In addition, most distributors currently keep records of their seed sales for their own purposes, so this administrative requirement should be absorbed into the existing system without cost.

The proposed rule would mark all Amaranthus weed species as Restricted noxious, meaning that less than 0.25% would be allowed in a seed mix but would be required to be labeled as such. Several other states have already approved a similar rule/law. The cost to the seed distributor would be to attach a new seed label that lists the amaranthus seed. This is the process that is already in place for all restricted noxious weeds on the noxious weed seed list. No additional burdens will be placed on seedsmen.

Relative to the administrative regulatory costs for implementation, OISC does not anticipate incurring any new measureable administrative burden as the result of this rule revision. There are adequate OISC staff and resources available to absorb any routine costs associated with the additional estimated three hundred or fewer regulated distributors. Inspections needed to insure compliance with the rule will be conducted by existing field staff through normal inspection activities. By contrast, however, it is projected that failure to implement adequate regulatory measures to address the amaranth family of weeds being sold in seed could very well result in a significant increase in the need for additional resources from OISC. This figure does not include the cost of yield loss to farmers from introducing these weeds. Land Grant Universities estimate yield loss at 71% on soybeans and 90% on corn with a amaranth infestation.

Estimated Total Annual Economic Impact:

It is estimated that total annual economic impact of implementing this rule would be in the hundreds of dollars, including all label reprints. Since amaranthus will be restricted noxious as opposed to prohibited noxious no additional seed cleaning should be required. As described elsewhere in this document, the cost of not acting proactively is projected to result in damages and economic losses to agricultural growers and other consumers that could be hundreds of times greater.

Supporting Data, Studies, and Analyses:

The following information has been examined and considered in determining the need for this rule:

- 1) University researchers along with corn and soybean growers have determined the yield losses from these economically devastating weeds that have grown resistant to multiple classes of herbicides is up to 91% on corn and 79% in soybeans, Indiana's top two cash grain crops.
- 2) U.S.D.A. has posted a publication on Palmer Amaranth and other "pigweed" species (Amaranthus family), stating that these weeds can grow up to 3" per day and produce as many as 500,000 seeds per plant. These seeds can lay dormant for years with an extended germination and emergence window, rapid growth rates and high water use of efficiency. Palmer Amaranth in particular can be toxic to livestock animals due to the presence of nitrates in the leaves.
- 3) Indiana Natural Resources Conservation Service has posted talking points for clients stating that some of the amaranthus family has been introduced through seed designed for the conservation plantings of CRP or EQIP. These weeds cannot readily be identified until late June or early July. This publication suggests that landowners and farmers be proactive in purchasing seed by requesting the lab seed card. This document states all weeds found in the seed lot and in many cases these weed cards do not clearly define specific species in the amaranthus family, rather, they list all species in the amaranthus family as "pigweed", or "pigweed type". By listing the entire family as prohibited noxious weed seed we eliminate the potential for confusion with which species is on the list and which are not.
- 4) Numerous surveyed states reported efforts to add the Amaranthus family or parts of it to the prohibited or restricted noxious weed seed list. These states are

struggling to implement their plans, whereas in Indiana we have a restricted noxious weed seed list in place, the Indiana State Seed Lab as a regulatory lab of record and an established regulatory process for which removing noxious weed seed infested lots of seed are removed from sale, cleaned and put back into sale with the seed distributors and retailers of the state. These seed distributors and retailers are familiar with this process, the state seed lab tests several thousand lots of seed annually.

- 5) Since all Amaranthus species seeds look similar, to the point that with high power magnification they cannot be distinguished from another it is imperative to list the entire family as a cost savings to all Indiana citizens, landowners and farmers.

Regulatory Flexibility Analysis of Alternative Methods:

OISC has studied other potential remedies and methods to address the issue of amaranthus weed seed contamination, including the following:

- 1) Test each seed found with the currently available DNA Sequencing Test. The cost of this test is \$100 per seed. In some cases we are finding up to 170 amaranthus seeds per sample. The price to the seedsman quickly becomes prohibitive.
- 2) OISC has also reviewed and tested seeds through a grow out method. The cost of this test is not a firm cost yet but is somewhere in the range of \$50 per seed and takes from eight to 12 weeks to administer. Due to the strong similarities of the amaranthus family of weeds while growing and the seed before growing this too can be a prohibitive test if many weed seeds are found per lot. For this reason we have chosen to list the weeds on the restricted noxious list so no additional testing will be required if under 0.25% of total seed lot weight.

Explanation of Preliminary Determination:

OISC has made a determination that the rule was necessary for public and environmental safety and property damage protection of agricultural growers and others. As explained throughout this document, the amaranthus family can produce large amounts of seed, shows resistance to the most common agricultural weed controls and lowers yields to a point of non-profitability for farmers. OISC determined that failure to institute proactive regulatory controls would likely result in significant unintended negative consequences once amaranthus became widespread throughout Indiana. Building on an existing regulatory structure that controls distribution of the state's worst weeds through their seed is the most responsible and cost-effective approach.

Summary Analysis:

As proposed, the only amaranthus family seeds that will be regulated by this rule are weed species. All flower or vegetable forms of the amaranthus family will not be impacted.

The noxious weeds in the amaranthus family would be controlled through testing and cleaning of said seed, under the same guidelines as seed is tested currently. Under current Indiana law, any seed that does not pass inspection due to restricted noxious weed

seeds is required to be labeled with the found weeds so consumers can see the weeds found and determine if they want to purchase the seed or not. Seed companies are already familiar with the proposed rule change and are familiar with their options under the current rules.

For the farmers of Indiana, control of the amaranthus family of weeds a top priority. Up to six of the most commonly used classes of chemicals in Indiana agriculture show little to no control of this family of weeds. So the only anticipated restriction of seed movement is one where the weed family is found and needs to be cleaned for resale.

This family of weeds has caused farmers to go “off label” on chemicals such as Dicamba. And before the U.S. EPA could even register new formulations of dicamba intended to be used with these new tolerant soybeans, farmers from other states (AR, MO, TN, IL) showed a willingness to use older labeled dicamba products illegally on these new tolerant soybeans. Enormous economic losses from drift and volatilization to other high value crops and ornamentals occurred, resulting in heated farmer on farmer and homeowner on farmer disputes, that escalated in at least one case to homicide of an impacted farmer neighbor. By controlling the movement of these weed seeds, we can positively impact agriculture in Indiana while we still have this window of opportunity.

Adding the amaranthus family of weed seeds to this list will provide several benefits:

- a) Seed that is tested and known to be amaranthus weed free will be in higher demand from farmers who are working to keep this family of weeds off of their farms.
- b) It will allow for continual outreach and communication between trainers, educators, regulators, and seed companies. If seed companies demand clean seed from their out of state suppliers it will help to keep Indiana’s large seed production areas clean and free of this pest.
- c) It will show on the label the amaranthus weed seeds and allow the farmers, gardeners and others that expect clean seed from our suppliers to see what they are buying.
- d) It will create a regulatory structure that will allow OISC to have a better chance to document seed lots that were not in compliance and help the seedsmen to stay within the new rules and guidelines.
- e) It will allow preventative action to protect crops and property rather than strictly reactionary measures with limited or no regulatory relief being provided to Indiana citizens.