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Specialized Section on Standardization of Seed Potatoes

The position of the Specialized Section on Standardization of Seed Potatoes on herbicide carryover

Submitted by the secretariat

Summary

The following document is submitted to the Working Party for adoption.

The document is based on ECE/CTCS/WP.7/GE.6/2024/4 and integrates modifications agreed at the fifty-first session of the Specialized Section on Standardization of Seed Potatoes in 2024.

The position of the Specialized Section on herbicide carryover

- Herbicides are routinely used in crop production systems to improve yields by controlling weeds, thereby reducing competition for water, light and nutrients. Selective herbicides target specific weed species, while non-selective herbicides can kill all plant species.
- Long lasting residues of herbicides can bind to organic matter and persist on vegetation or in the soil for months or years. Such residual herbicides can adversely affect seed potato crops. Examples of such herbicides include picloram, clopyralid and aminopyralid.
- Some herbicides can pass through the gut of an animal and contaminate manure which may then be applied to a crop. Similarly, herbicides can also contaminate compost. Therefore, the use of such products should be carefully considered. Examples of such herbicides include picloram, clopyralid, aminopyralid, and dicamba.
- Accidental contamination with agrochemicals (specifically systemic herbicides) is a major concern in seed potato production. Common causes of contamination include drift from sprayers operating in neighbouring crops, poor sprayer hygiene (such as spray tank contamination) and human error (such as incorrect dosage, use of non-selective herbicides, incorrect timing of application, etc.).
- Visible symptoms in the foliage of the potato crop, such as chlorosis, necrosis, and disrupted or distorted leaf growth, are usually evident and vary by the chemical involved. Tuber symptoms may include misshapen/malformed tubers, growth cracking or elephant hide and multiple weak stems at emergence. Affected crops may have poor emergence and uneven plant growth.
- Glyphosate contamination in seed crops is a common problem. Glyphosate can translocate to daughter tubers, particularly if the contamination happens later in the growing season. Contamination may lead to full/partial crop failure and symptoms may only become apparent in the progeny crop.
- If contamination is suspected in a seed crop, if practical, best practice is to discard the affected portion of the crop (along with a significant safety margin).
- Potato plants may regrow normally after contamination with contact herbicides e.g. metribuzin. If a crop has been contaminated with contact herbicides, field inspections can be delayed until the crop has recovered sufficiently. In extreme cases the plants may not fully recover, therefore the field inspection cannot be reliably conducted and consequently the crop should be rejected.
- The complexity of defining herbicide contamination in a seed potato crop makes it difficult to determine a tolerance for the purposes of certification. Therefore, management of herbicide contamination relies largely on prevention. Including:
    i. training of spray operators in the careful application of herbicides, particularly those involved in the protection of crops other than potatoes grown in the vicinity of seed potatoes
    ii. selecting a field with suitable herbicide history to enable the production of seed potatoes
    iii. education of seed potato growers regarding herbicides that may affect seed potatoes.

Reference: Robinson, A (A1949, February 2020). Herbicide Injury in Potatoes poster. NDSU/University of Minnesota. Available at: www.ndsu.edu/agriculture/ag-hub/publications/herbicide-injury-potatoes