



Importance and Process of Rouging Within Crop Production

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Background



Rogue refers to a seed/plant that deviates from the standard, desired variety. Rouging is the process in which a person is hired to inspect and clear the field of any rogue plants like noxious weeds, off-type varieties, volunteer crops, etc. This not only ensures uniform fields and plots, but it ensures limited liability when it comes to seed law. Seed law ensures that consumers are receiving quality products and products that are accurate according to the labels.

Research Question

Goal:

Illustrate the process of rouging and how rouging becomes critical in overall crop production.

Objectives:

- Establish seed law understanding and the reasoning behind legislative acts.
- Layout the rouging process and indicate the requirements needed to rogue.
- Determine the importance to customers of post-rouged plots and the effect of rogue processes.

Methodology/Outcomes

Colorado (CO) Seed Act:

The state of CO's goal is to require seed labeling, germination, and purity content be detailed and exact. Seed law has been enacted to create safety for farmers, ensure seed is viable and intentional, and to minimize weed seed contamination.

"Truth in labeling of seed is of paramount importance to the citizens of Colorado"
-Colorado Department of Agriculture

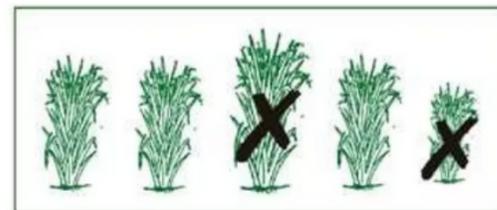


Rouging in Certified Seed Production:

The main objective of seed production is to produce pure crop genetics. This makes rouging extremely critical.

Rouging comprises of the selective removal of:

1. Off-types
2. Volunteer plants
3. Noxious weeds
4. Diseased plants



Proper rouging goes to limit the possible mutation and intercrossing between self-pollinating undesired and desired plants. Going without rouging results in low but definite measures of off-type populations within fields.

The rouging method includes inspecting every row of crops within a field and searching for rogue plants.

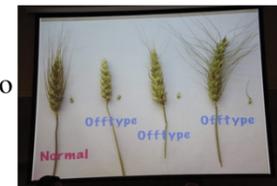
Days rouging require individuals to:

- Identify uniformity between plots
- Build familiarity of off-type species
- Extended time and effort for inspection
- Determine favorable plot characteristics
- Season-round commitment to ensure purity

When and how should crops be rouged?

Plants physically change with maturity. At each stage of growth there are distinguishing characteristics that are expressed. When a plant does not meet the characteristics of a desired plant(s), then it can be determined as rogue. Once a rogue plant is found then it is easiest to remove it from its living provisions like pulling it to expose the roots.

Rouging must be done repeatedly and systematically in order to capitalize on the differences shown at each stage of growth.



Outcomes of Rouging:

Outcomes go to show the difference in quality of crops and the fields the crops are in. Findings for rouged plots include higher germination rates, higher purity rates, and increased customer satisfaction.

With the lack of rouging, wheat for example can cross with rye. Creating a hybrid with less grain capacity, seed with lesser uniformity, and a seed variety that farmers will not want to buy. The two main types of plants that are most problematic in CO are the noxious weeds- bind weed and Russian thistle.

Discussion

- Rouging proves to produce plants with higher purity rates, increased crop quality, and increased customer satisfaction.
- Rouging processes have direct positive effects for regulation, farmers, and overall food supply.
- A practice that supports current agricultural production.

Future Directions

Rouging is and has been primarily a human labor item. Though, with recent technological advances there has been a trend of autonomous systems being introduced into farming systems. With the idea of rouging and maintaining plot uniformity, there have been steps to take out the human labor and introduce robots to do the process. Robots are an evolving technology that have begun to identify plant species and utilize lasers to kill off-types. Robots assisting in this practice would decrease labor costs and increase the efficiency in the rouging process.

References

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