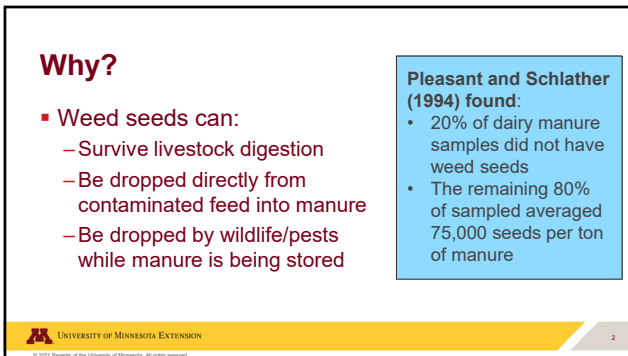




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Methods for determining weeds in manure

- Two primary methods:
 - Grow out studies
 - Seed separation + identification



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Grow out studies

- Prep a garden tray with a thin layer of moist potting soil
- Collect a manure sample and weigh it
- Spread it evenly on the growing tray and moisten if needed
- Keep moist and in a warm, sunny place or under grow lights

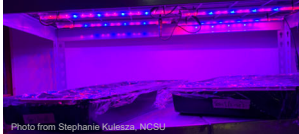



Photo from Stephanie Kulesza, NDSU



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Grow out studies – identifying the weeds

- Identify plants that develop!
 - Resource: <https://eorganic.org/node/2732>




Photo from Lisa Guenther, Farmtario




Photo from Joe Ikley, NDSU



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Grow out studies – Pros and cons

Pros <ul style="list-style-type: none">– Can identify many species present– Shows the seeds that are viable, not just present	Cons <ul style="list-style-type: none">– Takes a long time, often more than 1 month– Not all weed seeds sprout under these conditions– May still need genetic testing to determine some weed species
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Seed sorting methods

- My lab has been working on this:
 - Spiked a slurry and a bedded pack manure with 100 Palmer amaranth seeds
 - Tried several sorting methods:
 - Dry sieving
 - Rinsing through a set of sieves
 - Using a dispersing agent


Rinsing through a set of sieves caught >90% of spiked seeds

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Seed sorting + identification

- Obtain sieves, disposable pie pans, and the suspect manure
 - Best sieves: #18 (1.0-mm opening) and #40 (0.42-mm opening)



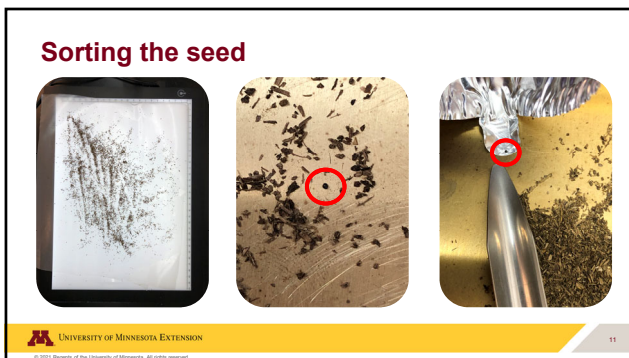
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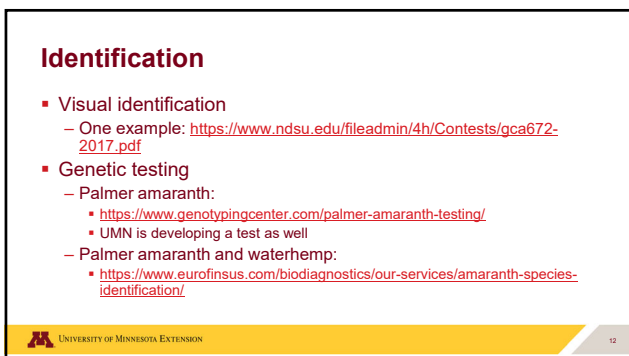
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Sorting + Identification – Pros and cons

Pros	Cons
<ul style="list-style-type: none">– Rapid compared to grow out method– Allows for genetic testing for identification of seed	<ul style="list-style-type: none">– Genetic testing does not exist for some weed seeds– Does not let you know if seeds are viable

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Driven to Discover

Thank you!

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