

On Farm Weed Management

“How crop rotation, hoeing machines, mulching, rolling and crimping are part of a farmer’s toolbox that balance soil health and weed control”

Our Farms Our Future Conference April 3, 2018

Jean-Paul Courtens

Roxbury Farm
Kinderhook, NY





Roxbury Farm 2004



35 acres in Cover Crops
35 acres in Vegetables
15 acres in permanent headland
and driving lanes
for 1100 member CSA



210 acres in Hay and Pasture
feeding 60 head of cattle and 45
ewes and offspring (100 lambs)



120 acres in wetland, forest,
shrub-land and waterways
20 acres of woods dedicated to
pig production (25 pigs)



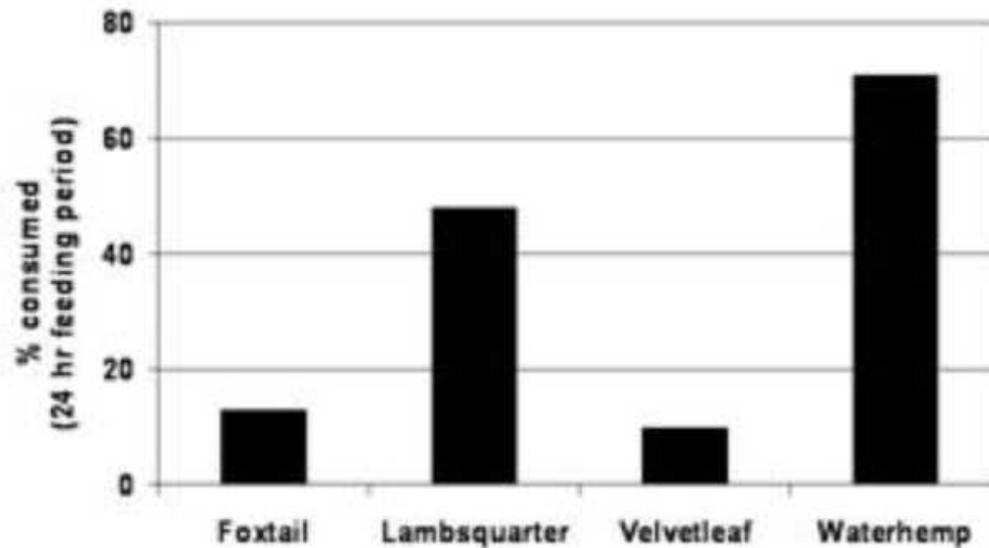
Non mechanical ways to control Weeds:

- Weed seed predation and mortality
- Shade
- Burning
- Tarping



Weed seed predation

Figure 3. Feeding preference of field crickets for four weed seeds.



van der Laet et al. 2006.

Germination and Viability of Weed Seeds after 2.5 Years

- Velvet Leaf: 58%
- Crabgrass: 12%
- Purslane: 10%
- Pigweed: 7%
- Barnyard Grass: 1%
- Texas Panicum: 24%
- Chickweed: 0%

Burie G. H. Egley and J. M. Chandler *Weed Science*
Vol. 26, No. 3 (May, 1978), pp. 230-239



Ways to mechanically control weeds:

- Cutting
- Uprooting
- Burying



Year 1 spring	Spring fallow or Rye and vetch
summer	Sorghum Crotalaria Sunflower mix
fall	Sorghum Crotalaria Sunflower mix mowed after frost kill. Compost Application
Year 2 spring	Oats and Peas
summer	Short fallow followed by cole crops
fall	Cole crops
Year 3 spring	Spring fallow
summer	Sweetcorn
fall	Oats
Year 4 spring	Spring Fallow
summer	Potatoes
fall	Rye and vetch
Year 5 spring	Rye and Vetch
summer	Summer Fallow or Buckwheat
fall	Oats and Peas

Mowing Rye in middle to Late May (when rye is in anthesis)



Roxbury Farm June 2013

Baling up in Late May or Early June



Roxbury Farm June 2014

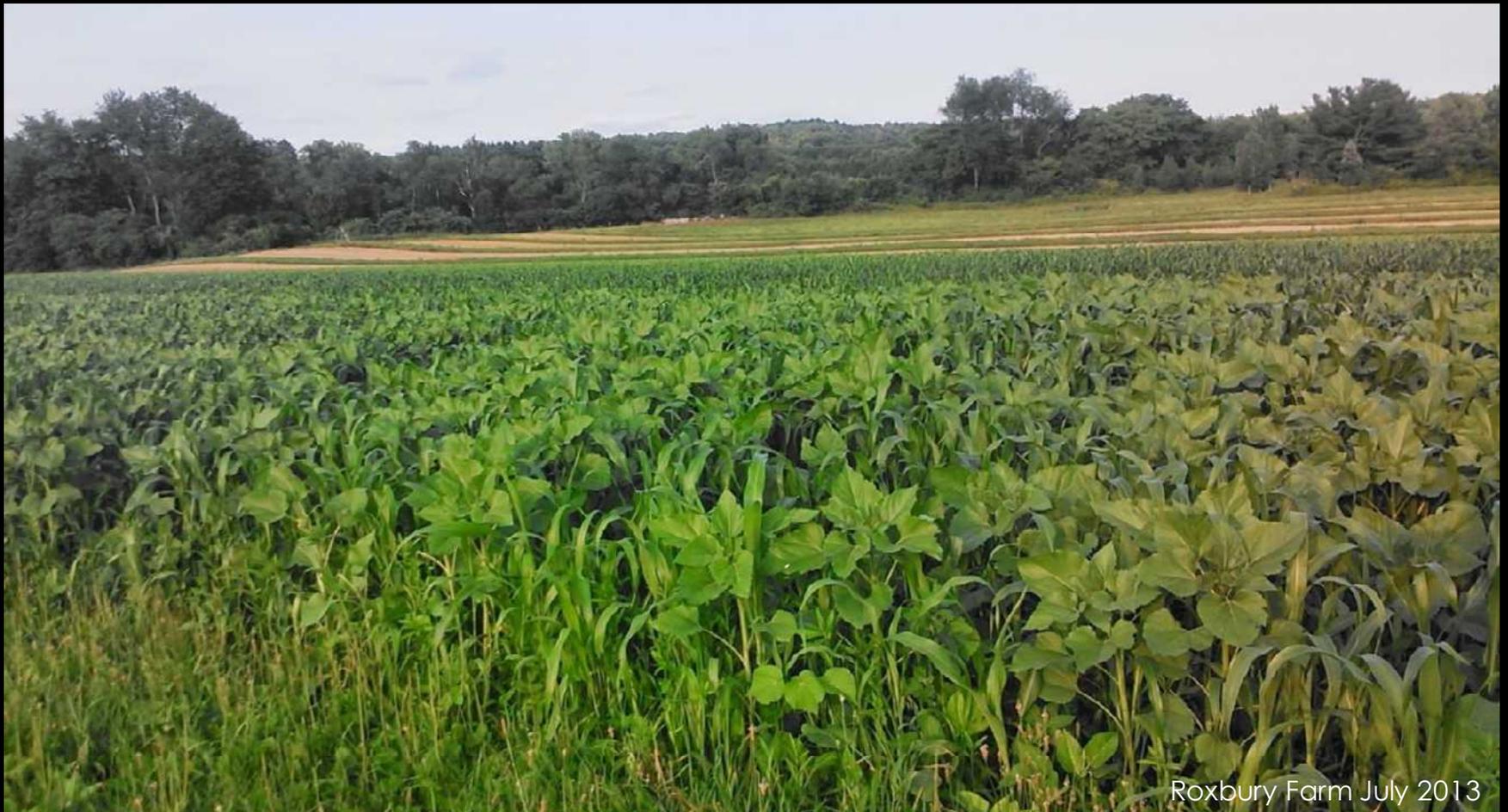
20 lbs Sorghum, 60 lbs Crotalaria,
5 lbs Sunflower planted after incorporation
of rye stubble



Roxbury Farm June 2013



Sorghum, Crotalaria, Sunflower mix in July



Roxbury Farm July 2013



Sorghum, Crotalaria, Sunflower mix in July



Roxbury Farm July 2013



Sorghum Crotalaria Sunflower mix in September



Roxbury Farm September 2013



Sorghum Crotalaria Sunflower Mix after first frost



Sorghum Crotalaria Sunflower Mix after the winter



Roxbury Farm April 2013



No till Drill of Oats and Peas in April



Roxbury Farm April 2014



Oats and Peas April



Roxbury Farm April 2013



Oats and Peas April



Roxbury Farm April 2014



Oats and Peas Late April



Roxbury Farm April 2014



Oats and Peas May



Roxbury Farm May 2014



Oats and Peas June ready for incorporation



Roxbury Farm June 2014

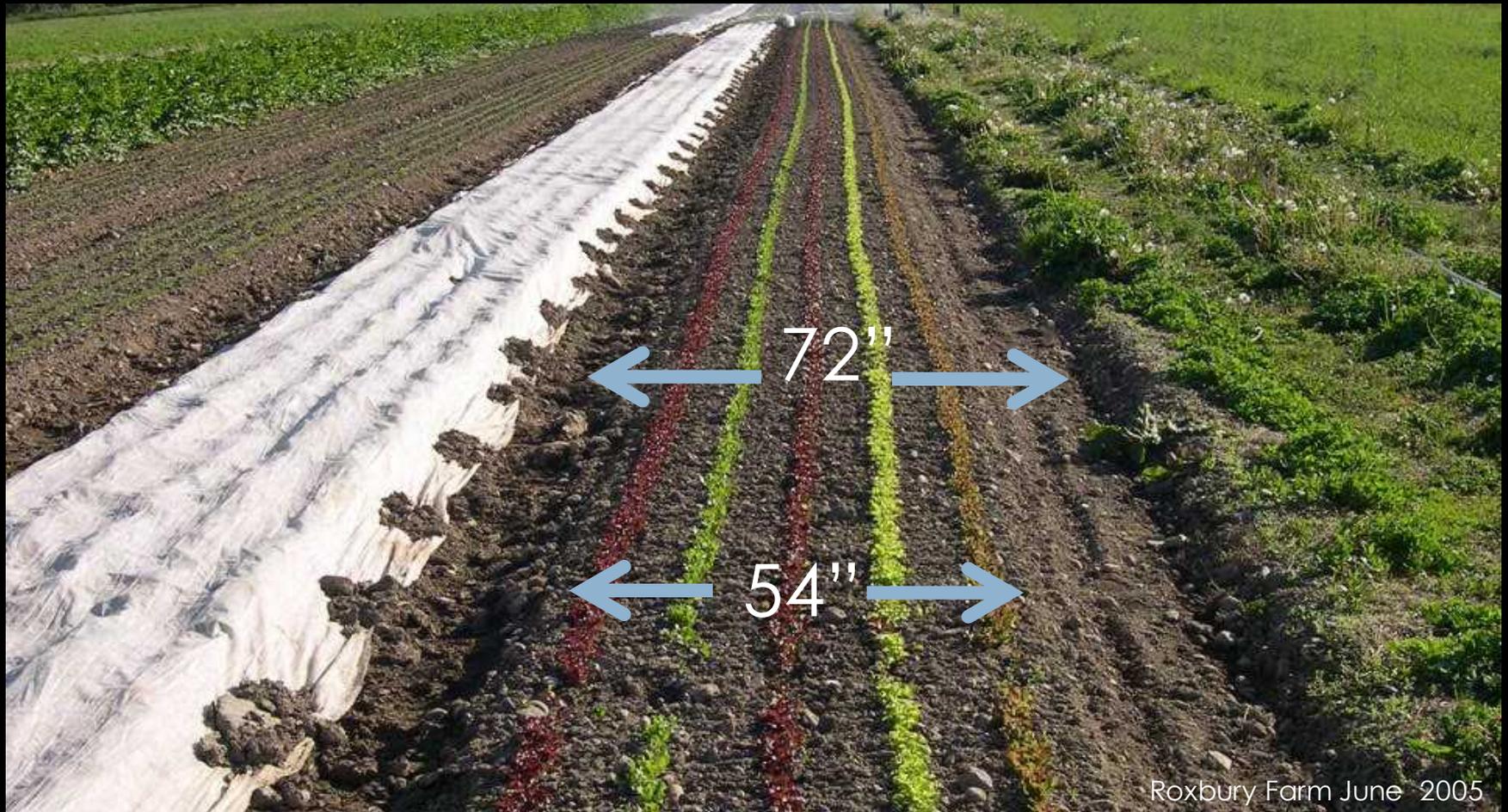


Mechanical Weed Control considerations

- How many rows can you fit on one bed?
- How can you cultivate multiple rows with one piece of equipment?



Beds on 72" Centers with 54" bedtop





2 rows



3 rows

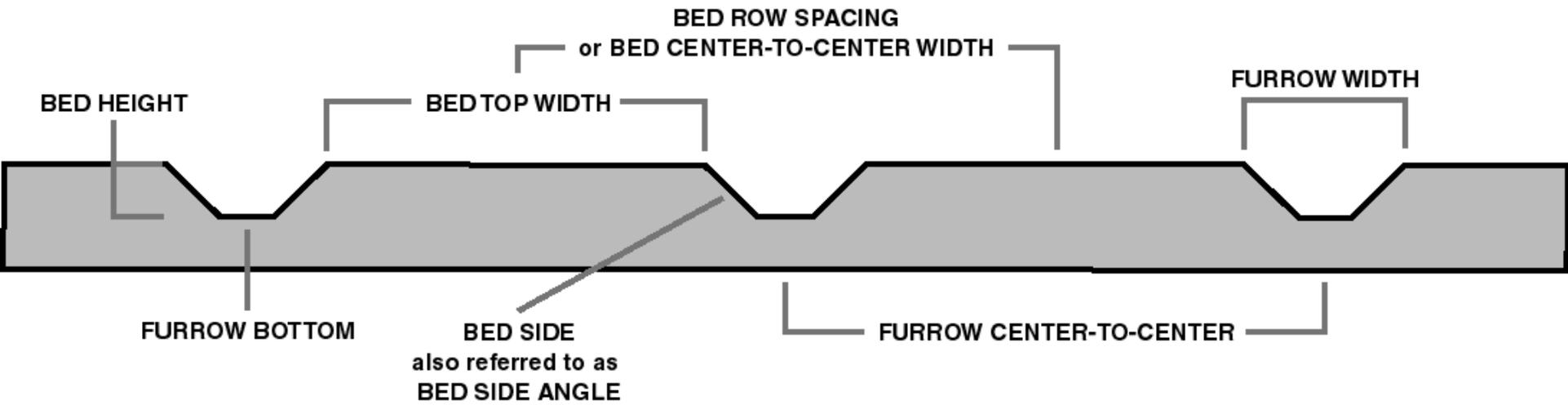
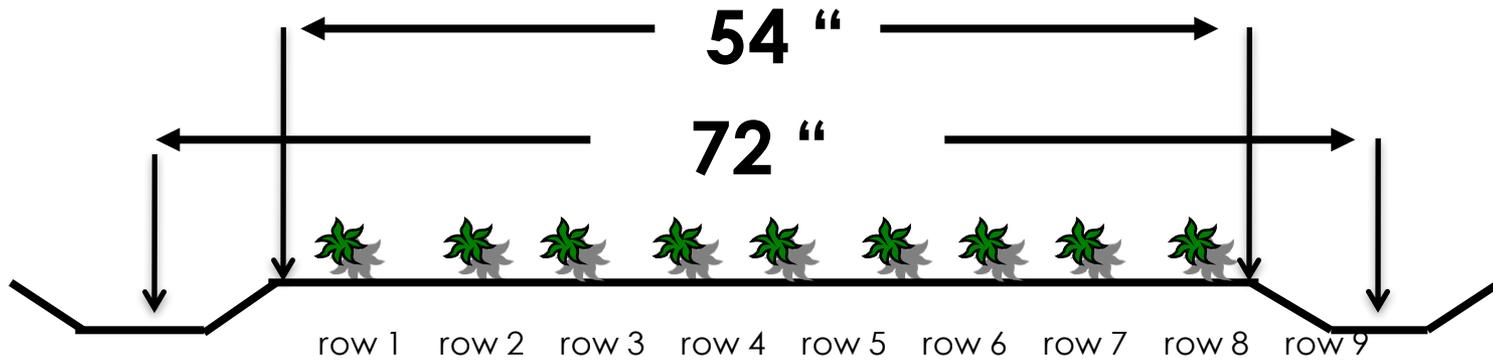


1 row or plastic mulch



5 rows

Controlled Field Traffic



Ferguson Double Disc Bedder



Soil Structure



Roxbury Farm June 2014



Modified Perfecta II Bedder



Roxbury Farm June 2014



Modified Perfecta II Bedder



Roxbury Farm June 2014



Modified Perfecta II Bedder



Roxbury Farm June 2014



Final Pass



Roxbury Farm June 2014



Steketeer Combi Seedbed maker



Front mounted Steketeer combination seedbed maker.
Front hitch made by Laforge

Roxbury Farm June 2012



Steketee Combi Seedbed maker



Roxbury Farm June 2012



Steketee Combi Seedbed maker



Roxbury Farm June 2012



Planted in Broccoli



Roxbury Farm July 2012



Planting garlic



Roxbury Farm Oct 2012

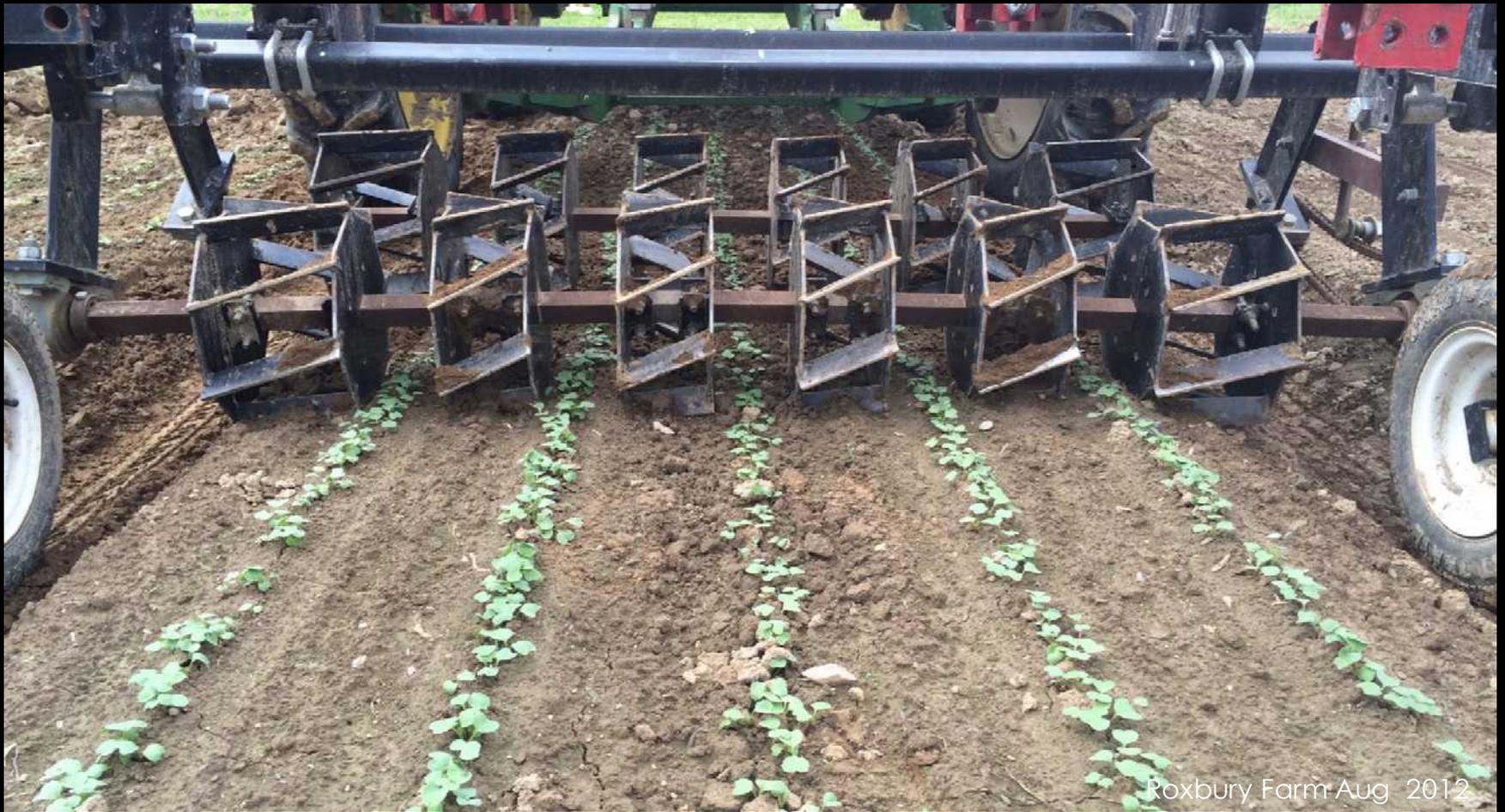


Three ways to mechanically control weeds:

- Cutting
- Uprooting
- Burying



Uprooting with the basket weeder:



Roxbury Farm Aug 2012



Cutting with Side-knives and burying and uprooting with Danish S tines (I&J elements)



Roxbury Farm Aug 2012



Cutting with Hak hoeing elements



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Hak front mounted hoeing elements



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Cutting and uprooting



Hak rear mounted hoeing elements



Hak Hoeing elements with Torsion Weeders



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Hak Hoeing elements with Torsion Weeders



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In combination with rear mounted Hak Finger weeders



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Hak Rear Mounted finger weeders



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Video by Bryon Brown
Cornell University

Burying with Bezzerides Spring Hoes



Burying with Bezzerides Spring Hoers



Burying with Bezzerrides Spring Hoes



Burying with the Steketee Ridger



Burying with the Steketee Ridger



Cutting, burying with the Hak ridge cultivator



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Hak ridge cultivator



Hak Ridge cultivator





Weedbedder



Weedbedder



Weedbedder



Plasticulture



Hillside Cultivator



Hillside Cultivator



Mulching with Straw



Mulching with Straw



Mulching with Straw



Mulching with Straw



Mulching with Straw



Mulching with Straw



Mulching with Straw



Rolling and Crimping Vetch 06/20/17



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Rolling and Crimping Vetch 06/20/17



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Min Till Transplanting sweet corn 06/22/17



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RJ Transplanter



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Min Till Transplanting sweet corn 06/22/17



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Min Till Sweet corn 06/26/17



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Min Till Sweet corn 07/08/17



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Min Till Sweet corn 07/14/17



HV Farm Hub July 2017



Min Till Sweet corn 07/21/17



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Min Till Sweet corn 07/28/17



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Min Till Sweet corn 07/28/17



Min Till Sweet corn 08/03/17



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Min Till Sweet corn 08/10/17



Min Till Sweet corn 08/16/17



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Min Till Sweet corn 08/16/17



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Thank You for your attention

For more information:

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