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
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 Laat 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%

Ways to mechanically control weeds:

- Cutting
- Uprooting
- Burying
<table>
<thead>
<tr>
<th>Year 1</th>
<th>spring</th>
<th>Spring fallow or Rye and vetch</th>
</tr>
</thead>
<tbody>
<tr>
<td>summer</td>
<td></td>
<td>Sorghum Crotalaria Sunflower mix</td>
</tr>
<tr>
<td>fall</td>
<td></td>
<td>Sorghum Crotalaria Sunflower mix mowed after frost kill. Compost Application</td>
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<tr>
<td>Year 2</td>
<td>spring</td>
<td>Oats and Peas</td>
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<tr>
<td>summer</td>
<td></td>
<td>Short fallow followed by cole crops</td>
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<tr>
<td>fall</td>
<td></td>
<td>Cole crops</td>
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<tr>
<td>Year 3</td>
<td>spring</td>
<td>Spring fallow</td>
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<tr>
<td>summer</td>
<td></td>
<td>Sweetcorn</td>
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<tr>
<td>fall</td>
<td></td>
<td>Oats</td>
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<td>Year 4</td>
<td>spring</td>
<td>Spring Fallow</td>
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<tr>
<td>summer</td>
<td></td>
<td>Potatoes</td>
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<tr>
<td>fall</td>
<td></td>
<td>Rye and vetch</td>
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<tr>
<td>Year 5</td>
<td>spring</td>
<td>Rye and Vetch</td>
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<tr>
<td>summer</td>
<td></td>
<td>Summer Fallow or Buckwheat</td>
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<tr>
<td>fall</td>
<td></td>
<td>Oats and Peas</td>
</tr>
</tbody>
</table>
Mowing Rye in middle to Late May
(when rye is in anthesis)
Baling up in Late May or Early June
20 lbs Sorghum, 60 lbs Crotalaria, 5 lbs Sunflower planted after incorporation of rye stubble
Sorghum, Crotalaria, Sunflower mix in July
Sorghum, Crotalaria, Sunflower mix in July
Sorghum Crotalaria Sunflower mix in September
Sorghum Crotalaria Sunflower Mix after first frost
Sorghum Crotalaria Sunflower Mix after the winter
No till Drill of Oats and Peas in April

Roxbury Farm April 2014
Oats and Peas April
Oats and Peas April
Oats and Peas Late April
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
3 rows
2 rows
1 row or plastic mulch
5 rows
Controlled Field Traffic

- **Row 1**
- **Row 2**
- **Row 3**
- **Row 4**
- **Row 5**
- **Row 6**
- **Row 7**
- **Row 8**
- **Row 9**

**Dimensions:**
- **54"**
- **72"**

**Key Terms:**
- **Bed Row Spacing** or **Bed Center-to-Center Width**
- **Bed Height**
- **Bed Top Width**
- **Furrow Width**
- **Furrow Bottom**
- **Bed Side** (also referred to as **Bed Side Angle**)

**Furrow Center-to-Center**
Ferguson Double Disc Bedder
Soil Structure
Modified Perfecta II Bedder

Roxbury Farm June 2014
Modified Perfecta II Bedder

Roxbury Farm June 2014
Steketee Combi Seedbed maker

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

Roxbury Farm June 2012
Steketee Combi Seedbed maker

Roxbury Farm June 2012
Stekeye Combi Seedbed maker
Planted in Broccoli
Planting garlic
Three ways to mechanically control weeds:

• Cutting
• Uprooting
• Burying
Uprooting with the basket weeder:
Cutting with Side-knives and burying and uprooting with Danish S tines (I&J elements)
Cutting with Hak hoeing elements
Hak front mounted hoeing elements

HV Farm Hub Aug 2017
Cutting and uprooting
Hak rear mounted hoeing elements
Hak Hoeing elements with Torsion Weeders
Hak Hoeing elements with Torsion Weeders
In combination with rear mounted Hak Finger weeders
Hak Rear Mounted finger weeders
Burying with Bezzerides Spring Hoes
Burying with Bezzerides Spring Hoes
Buriing with Bezzerides Spring Hoes
Burying with the Steketee Ridger
Burying with the Steketee Ridger
Cutting, burying with the Hak ridge cultivator
Hak ridge cultivator
Hak Ridge cultivator
Weedbedder
Weedbedder
Weedbedder
Plasticulture
Hillside Cultivator
Hillside Cultivator

Our Farms Our Future Conference
On Farm Weed Management Practices
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

HV Farm Hub June 2017
Min Till Transplanting sweet corn 06/22/17
RJ Transplanter
Min Till Transplanting sweet corn 06/22/17
Min Till Sweet corn 07/08/17
Min Till Sweet corn 07/21/17
Min Till Sweet corn 07/28/17

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HV Farm Hub July 2017

On Farm Weed Management Practices
Min Till Sweet corn 07/28/17
Min Till Sweet corn 08/03/17
Min Till Sweet corn 08/10/17
Min Till Sweet corn 08/16/17

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On Farm Weed Management Practices
Min Till Sweet corn 08/16/17
Thank You for your attention

For more information:  
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