

Transforming Organic Agriculture



Preseason – Early Season Equipment

March 7, 2019

Weed Management – Key Points

- Pre-Planting to canopy is GAME ON!
- Be proactive
- Speed matters
- Set-up – go faster by going slow
- Interlacing Unit Ops (no strict rules)
- Frequency
- Adaptability
- Be Aggressive

 **Variety is the Spice of Life!**



Tillage Tools

Tine Weeder

Purpose: removes non-visible to 'just' emerging weeds, which offers more flexibility compared to a rotary hoe

Timing:

- Post planting, prior to emergence, at emergence, and in early stages of standing crop
- Cut-off is when you can effectively cover the plant root base with adequate 2-3" soil during cultivation.
 - 4-5th trifoliolate in beans
 - 4-5 leaf stage in corn.

Set-up & Use:

- Set-up is more of an art than a science
- Most effective with the soil is loose and not cloddy
- If the soil is not loose, perform a rotary hoe pass first
- Pre-emergence travel at speeds of 10+ mph
- Emerged crops, it is recommended to travel at 2-4 mph
 - *Use caution with standing crops*
- If heavy debris (corn stalks, cobs, etc.) stop every few rounds to clean off tines
- In standing crop, some leaf matter destruction will occur (and feel uncomfortable), but the more aggressive the tillage the better



Tine Weeder

Pre Tine Weeder #1

- Pic from May 22nd
- Planted on May 18th
- Received 1" rain post plant – no time to harrow
- Weeds emerging 1/4" to 1/2" in places
- Soil is hard



Pre Tine Weeder #1

- Pic from May 22nd
- Rows seem extreme – mini furrows.
- Important to try and harrow ASAP post planting to even out soil prior to tillage



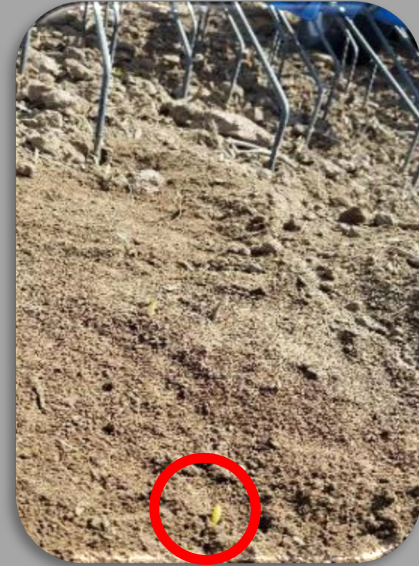
Post 1st Tine Weeder Pass

- Pic from May 22nd
- Post tine weeding, the field is more even & most small weeds are removed or covered
- Ran 2.25" deep with tines at 45 degree angle to tractor
- Assess crop and ensure seeds are not moving



Post 2nd Tine Weeder Pass

- Pic from May 24th
- 1" of soil was removed in row to show intact sprouting corn 1/2" below surface



Rotary Hoe

Purpose: preventative tillage tool – it removes weeds that are at non-visible to white root hair state

Timing: designed to be used post planting, prior to emergence, at emergence, and in early stages of standing crop. Ideal cut-off is when plant root base can be covered with adequate 2-3" soil during cultivation

- 4-5th trifoliolate in beans
- 4-5 leaf stage in corn

Set Up and Use:

- Wheels need to be free flowing
- Ensure spoons on wheels are not worn
- Keep a few wheels in tractor for quick replacement
- Speed is your friend, optimum speed is 11-15 mph with and without a crop in ground
- If heavy debris (corn stalks, cobs, etc.), stop every few rounds and clear off wheels
- Check periodically that wheels are free spinning
- In standing crop, some leaf matter destruction will occur (and feel uncomfortable), but the more aggressive the tillage the better



Rotary Hoe - Corn & Soybean Tips

- Soil must be constantly striated to reduce weeds from growing
- Highly effective if used proactively
 - Targets white root hair stage of weeds
 - Is not very effective on weeds you can see
- Operates safely at a speed between 11-15mph
- Quantify crop damage when in standing crop
- Interlace the rotary hoe in between early cultivation passes



Corn Ready to be Hoed



Soybeans Ready to be Hoed



Rotary Hoe on Emerging Soybeans

In-Row Cultivator

Purpose: primary in-season tillage tool prior to crop canopy

Timing: as soon as possible post-emergence, typically first passes are conducted 2-3 weeks post-emergence through crop canopy

Set Up and Use:

- Options Include: side shields, barring off discs, hiller attachments, and various footprints of the actual sweep. All can be effective, if used right.
- Find breakpoint in speed (i.e. plants are continuously covered by soil), then back off slightly
- Sweep footprint should build over time. Be as aggressive as possible – it is not out of the question to use sweeps as wide as 24-27” in a 30” row
- Ideally, passes should occur at 4.5-7.0 mph (with the exception of the initial 2 passes)



Cultivation Tips

- Start cultivating as soon as possible (e.g., 2 leaf corn or 2nd trifoliolate beans)
 - 1st cultivation pass goal is to loosen the soil
 - 2nd cultivation pass goal is to begin throwing soil
- Interlace tillage passes (tine weeder or rotary hoe) while transitioning to cultivation
- If soil (1-2") is not being moved in row, continue leveraging additional tillage passes (tine weeder or rotary hoe) until soil is being moved
- Speed is critical – find the point of complete failure and then back down slightly



Propane Flamer

Purpose – eliminates and/or reduces weed pressure through heat (vs. mechanical tillage)

Timing – there are distinct cropping windows that a propane flamer can be leveraged and are very specific depending on the crop.

Set-up and Use

- Effective in wet ground conditions that make other forms of weed management difficult
- Can be leveraged in a banding or broadcast fashion depending on crop type and maturity
- All flamers are not created equal and specifics are model related
- The taller the weeds the more propane is necessary to achieve the desired the “burn effect”

Weed Burning Tips

- Effective weed management tool especially during a wet season
- Each crop has a specific burn window(s)
- Speed, flame angle, pressure, and amount are all important
- Each type of Burner has specific settings
- Estimated fuel usage
 - Broadcast: 10 - 12 gallons
 - Banding: 4 - 5 gallons
- More effective on broadleaves (vs. grass)
 - Treat broadleaf weeds early (1-3"), lower propane requirements
 - Cultivate grasses shortly after, as it will only "knock back" grasses
- Wait to burn until dew is off leaves
- Assess damage with fingerprint test



Fingerprint Test to Verify Tissue Died Post Burning



8-Row Flamer with Hoods

Before Flame Weeding



10 days After Flame Weeding



- Common water hemp pre and post burning. Burning done with 10 GPA at v10 stage
- *Source: Propane Education & Resource Council*



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Questions?

Reach out to your Account Executive today!