

Organic Crop Production Weed Management

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Mechanical Weed Control Considerations

- Perfectly straight rows
- Simplify row spacing and bed widths to minimize adjustments
- Consider multiple-row units – gauge wheels if field not level
- Frequently used tractor-mounted cultivators – get adjusted and leave on tractor entire season
- Make sure crop's income covers need for specialized weed control steps

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Mechanical Weed Control Considerations

- Select tools you can alter to work at many depths, widths or crop sizes
- In-row tools work well in loose, fairly dry soil without large clods or rocks

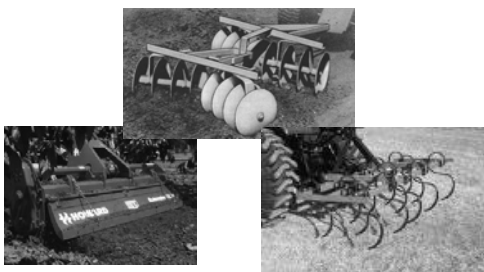
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Pre-Plant Weed Control

- Tandem Disk
- Rotary Tiller
- Field Cultivator
 - s-tines or c-tines, staggered, fitted with sweeps or shovels
 - Not used after planting, except narrow row units
 - Relative heavy, not suited to small tractors

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Pre-Plant Weed Control



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Flamers



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Flamer

- Used prior to and just after crop emergence
- Used on tiny seedlings or before they have 3 or 4 leaves (before the growing point emerges)
- Don't burn weeds – proper flaming will have little visible effect
- Stale seedbed

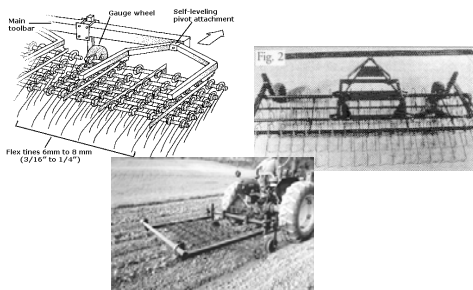
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Flamers

- Backpack (wand type)
 - Spot weed control
 - Stale seed bed coverage or limited acreage
- Backpack (push type)
 - Broadcast for pre-emergent, directed between crop rows
 - Crop: 0"-1" and 4"-6"
 - Weeds: up to 3"
- Tractor mounted
 - Larger area, broadcast for pre-emergent, directed for between row crops

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Flex Tine Weeder



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Flex Tine Weeder

- Sprouting and emerging weeds
- Better in tilthy, soft soils, loose or lightly crusted
- No long-stemmed residue
- Post emergent – crop must be well-rooted
- Crop height: 2"-8" (corn and soybeans), not for soybeans at 0.5"-2"
- Weeds: 1"

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Rotary Hoe



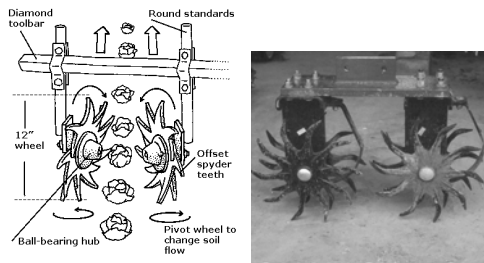
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Rotary Hoe

- Sprouting and emerging weeds
- Gauge wheels especially if extra weight needed
- Not good weeder in tilthy, soft soils
- Rocks jam in wheels
- Plastic mulch pieces collect of wheels
- Crop height: 8" (corn), 5" soybeans (not between 0.5"-2")
- Weeds: pre-emergent, white-root stage; post-emergent, 2"-4"

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Spyders



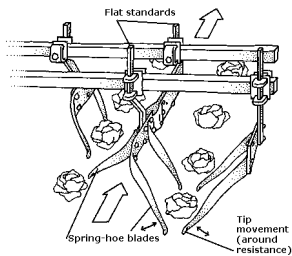
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Spyders

- Ground driven
- Used in pairs to crumble soil and dislodge weeds
- Can change position to pull soil toward plant or push away
- Sprouting or emerging weeds
- Works well in heavy soils, not recommended for light soils (too heavy and works too deep)
- Rocks jam in wheels
- Use alone or ahead of in-row weeding tools

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Spring Hoe



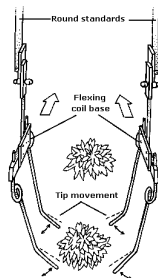
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Spring Hoe

- Raised sets of elongated 10 gauge metal plates
 - Kills weeds up to 1" by slightly moving soil between crop plants in row
 - Multiple component weeding frame
 - Flamers (after crop has emerged and while white root weeds start to gain color even up to 2 inches)

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Torsion Weeders



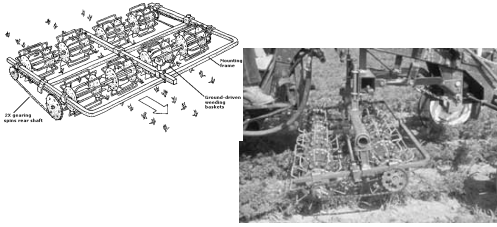
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Torsion Weeders

- Square tines of 3/8" steel used in pairs, pointed on either side of row, angles downward and back toward row
- Usually follows spyders, sweeps, or crust breakers for greater precision

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Basket Weeder



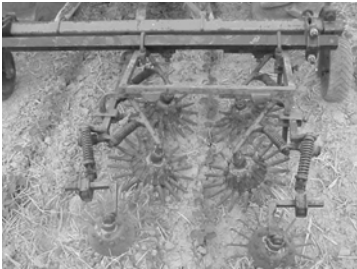
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Basket Weeder

- Sprouting or emerging weeds
- Rolling baskets made of 1/4" spring wire
- Rear gang turns faster than front gang
- Works only in friable soil, not crusted
- Cannot handle long stemmed residue
- Crop height: 10"
- Weed height: 2"

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Finger Weeders



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Finger Weeders

- Steel cone wheels – rotated by ground-driven spike tires
- Push rubber fingers just below soil surface, reaching into row
- Can work safely in row for crops with sufficient stem strength and root resistance (corn, strawberries, nursery stock)

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Finger Weeders – Cont'd

- Works best in loose soils
- Won't work in heavily crusted soils or with long stemmed residue present
- Usually belly mounted, but also on three-point hitch

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Row Crop Cultivator



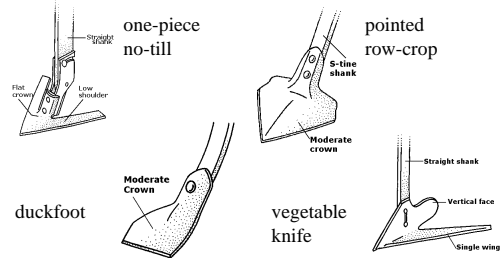
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Row Crop Cultivator

- Low residue, 1"-2" deep with shanks less than 6" apart
- Crop height: 3"-32"
- Weed height: 6"
- Also have moderate and high residue versions
- High residue – coulters, heavier shank

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Sweeps, Shovels, Knives



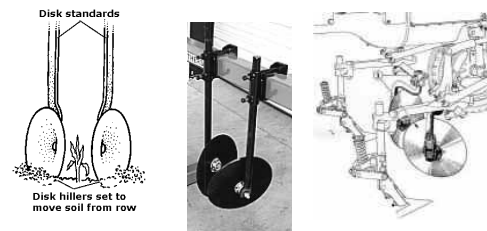
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Row Crop Cultivator – Cont'd

- Sweeps/shovels/knives
 - Various shapes and designs from 4" to 30" wide
 - Slice through tall weeds, uproot shallow ones and bury others
 - Shields available

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Disk Hillers



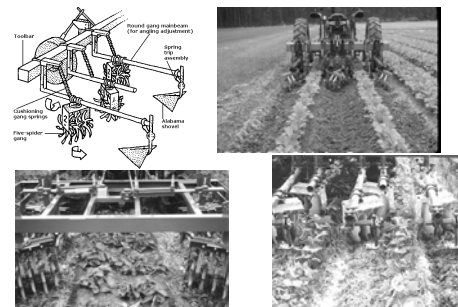
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Row Crop Cultivators –Cont'd

- Disk hillers
 - Can pull soil toward or away from row
 - Buries weeds
 - In later cultivations can prune crop roots if too deep or too close to row

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Rolling Cultivators



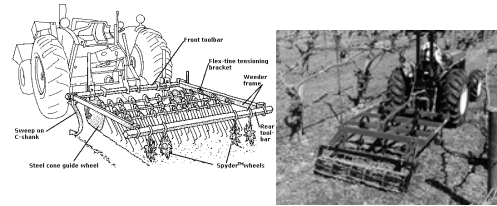
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Rolling Cultivators

- Use when crops are large enough to tolerate soil flowing against them
- Leave spyder gangs on
- First pass 2.5-3 mph to throw up 1.5" of soil
- Ten days – 2 weeks later, 5 mph to throw up 8" hills
- Potatoes – rolling cultivator for first cultivation
- Between widely spaced squash – whenever weeds get 1" tall (remove center shank to straddle crop)
- Guide wheels and cones

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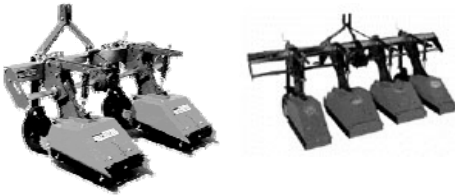
Multi-Component Weeding Frames



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Multivator

- Perennial crops (strawberries)
- Strip till



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Roller Crimper

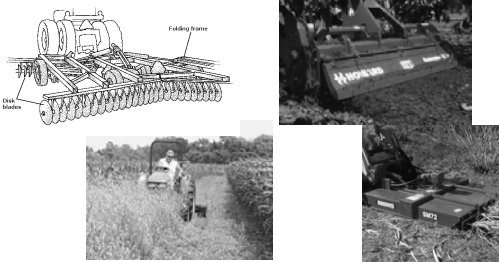
- Roll down cover crop for no-till
- Front mounted
 - More effective
 - Allows for planter mounted on rear



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Post Harvest Weed Control

- Do not let weeds go to seed



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Tractors with Offset Seats/Engines

John Deere – HC900 (high clearance, offset)

- Allis G
- Farmall – Super A, Cub
- IH-140
- Kubota L245H
- Saukville

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Allis Chalmers G



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Farmall – Super A



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IH-140



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Kubota L245H



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Saukville



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Questions?

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