



# Vineyard Weed Management 2023

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## This presentation is not for:

- Mow
  - Graze livestock
  - Cultivate
  - Organic
- 

**Goal: maintain 18  
inches generally weed  
free on each side of  
the vine**





## Why:

- Vines do not compete well for nutrients or water uptake with weeds
- Drier lower canopy helps with airflow and decreases diseases
- Less hindrance to other vineyard operations
- Can change the root structure on vines
- Hinder establishment of young vines or recovering vines
- Weeds don't take good pictures

## How to calculate herbicide rates

- Label rates are based on “broad acre” applications
- Do not concentrate the herbicide in the row instead adjust for area covered

Example: Credit Extreme (Glyphosate 540 grams/l)

Label says 1.5-8 l/ha converts to .6-3.2 l/ac

So lets say 1 l/ac



209 feet

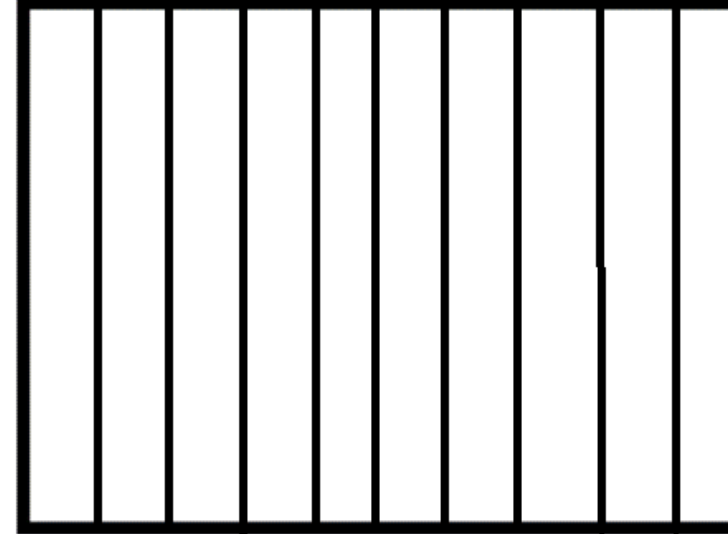
209 feet

= 1 acre

## How to calculate herbicide rates

- 18 inch on each side of vine...
- 18 inch+18 inch = 3 ft/10 ft row spacing
- 30% of the total area therefore

We only need 30% of the 1 l to cover the whole acre



209 feet

209 feet

= 1 acre

## How to calculate herbicide rates

- Or we can do it another way.....

There are 43,560 square feet in an acre. We are treating 18 inch or 1.5 feet  
So we can treat 29 040 feet of row to get a total acre.

If I calibrate my sprayer and add enough water to cover 1 acre and add 1 l of Credit Extreme and if my rows are 900 feet long then I should run out  $\frac{1}{4}$  of the way through row 33

That's just a simple way to check your calibration.

# How to search a label

- Go to the PMRA Label search site to find the latest labels:

<https://pr-rp.hc-sc.gc.ca/lr-re/index-eng.php>

Google Search: [PMRA label search](#)

The screenshot shows the Health Canada website interface. At the top left, there are logos for Health Canada and Santé Canada. The main header features the Health Canada logo and the URL www.hc-sc.gc.ca. A navigation bar includes links for Français, Home, Contact Us, Help, Search, and canada.gc.ca. Below this is a breadcrumb trail: Home > Consumer Product Safety > Pesticides & Pest Management > Registrants & Applicants > Tools > Search Product Label. A section titled 'Consumer Product Safety' contains a 'Print' icon and a 'Text Size' selector with options S, M, L, XL, and Help. The main heading is 'Search Product Label'. A paragraph explains that the label transcript service is offered by the Pest Management Regulatory Agency for efficient searching, but it does not replace the official hard-copy label and is not liable for any loss. Below this, a link for 'Application' is provided. The 'Search product information' section has a sub-heading 'Search full contents of e-labels:' followed by a text input field with the placeholder 'Enter the text you wish to search for'. At the bottom, there is a section for 'Initial Criteria:'.



**PRODUCT DESCRIPTION**

Water soluble herbicide for non-selective weed control in CROPLAND SYSTEMS and CROPLAND AREAS. For optimum weed control apply Credit Xtreme Herbicide to actively growing weeds, thorough coverage of the weeds is important.

**CROPLAND USES INCLUDE:**

In cropping systems before planting of all crops; in minimum tillage systems; postemergent in glyphosate tolerant canola, soybean and corn i.e., varieties with the Roundup Ready® gene; preharvest applications in wheat, barley, oats, canola (rapeseed), flax (including low linolenic acid varieties), peas, lentils, dry beans, soybeans, chickpeas, dried lupins, dried fava beans and forages; in pasture renovation; in forage, legume and grass establishments; in tree crops including apple, pear, cherry, plum, peach, apricot, filbert, hazelnut, walnut, chestnut, Japanese hickory, and in grapes, cranberries, blueberries and strawberry; in sugar beets; in asparagus; in North American ginseng; in tree plantings; and grasses for seed production.

**NON-CROPLAND USES INCLUDE:**

Industrial; recreational, rights-of-way, and public areas; turf grass renovation.

**PRECAUTIONS**

KEEP OUT OF REACH OF CHILDREN. May irritate eyes. Avoid contact with eyes or prolonged contact with skin. For good hygiene practice, wear a long-sleeved shirt, long pants goggles or a face shield and chemical resistant gloves during mixing, loading, cleanup or repair activities.

**For agricultural uses:** Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.

**For non-crop uses:** Do not enter or allow entry into treated areas during the restricted-entry interval (REI) of 12 hours or until sprays have dried. Workers who must enter fields within this time period should wear a long-sleeved shirt, long pants and chemical-resistant gloves.

**ENVIRONMENTAL PRECAUTIONS**

- **TOXIC** to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.
- To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay.



On keyboard: Press CTRL + F

- Keywords to search for:
- Grape
  - Vineyard
  - Entry
  - Harvest or PHI
  - Rain



Search bar containing the text 'Grape' and navigation icons. Below the search bar, a search result snippet is visible with the word 'grapes' highlighted in orange. A 'Next result' button is located to the right of the snippet.



(Sleeve) GROUP 9 HERBICIDE

**Nufarm**  
**Credit® Xtreme**  
 Herbicide  
 SOLUTION  
 AGRICULTURAL and INDUSTRIAL

**CAUTION - EYE IRRITANT**

WATER SOLUBLE HERBICIDE FOR NON-SELECTIVE WEED CONTROL

REGISTRATION NO. 29888 PEST CONTROL PRODUCTS ACT.

**ACTIVE INGREDIENT:** Glyphosate, present as isopropylamine and potassium salt ... 540 g/L

**READ THE LABEL AND ATTACHED BOOKLET BEFORE USING.**

(1 Litre to (bulk) Litres)

Nufarm Agriculture Inc.  
 5101, 333 - 96th Ave NE  
 Calgary, Alberta T3K 0S3  
 1-800-868-5444

24 Hour Emergency Response Number 1-800-424-9300

Credit® is a registered trademark of Nufarm Limited

**PRECAUTIONS**

KEEP OUT OF REACH OF CHILDREN. May irritate eyes. Avoid contact with eyes or prolonged contact with skin. For good hygiene practice, wear a long-sleeved shirt, long pants, goggles or a face



- AirDrop
- Messages
- Mail
- Messenger

- Copy
- Add to Reading List
- Add Bookmark
- Add to Favorites
- Find on Page
- Add to Home Screen
- Save to Files
- Markup
- Print



## Other resources:

- Perennia's Grape Production Guide
- Perennia's Guide To Pest Management in Grapes

# Review of products

- Products can fit into different categories

**Post emergent: No Residual  
Grasses and Broadleaf weeds**

Glyphosate

Ignite

Aim (weak on grass)

**Pre emergent: Residual  
Grasses and Broadleaf weeds**

Alion

Authority

Chateau

Devrinol

Frontier Max



**Post-Emergent: No residual  
Grasses**

Poast Ultra

Venture

Assure II

**Post-Emergent and  
Residual limited grass and  
broadleaf weeds:**

Prism

Chikara

# Glyphosate: Roundup/Credit Extreme/Mad Dog etc. etc.

- Plantings older than 3 years
- 14 days PHI, max 3 applications/year
- No residual weed control activity
- Readily taken up through green tissue and translocated through the plant: therefore it needs to be applied POST emergent to the weeds
- Very effective on most grasses and broadleaf weeds, very good on perennials
- Weaknesses vetch, cleavers, bluegrass ..... cautious on Canada fleabane
- Keep off green grape vine plant parts and minimize drift,  
very common to see crop injury



# Ignite: Glufosinate

- POST- Contact herbicide, no residual effect
- For use on “established vines”
- Isolated from Streptomyces
- Provides good control of many young annual, grass and broadleaf weeds.....weak on well established perennials
- Burns off the top of perennials and biennials and regrowth may occur

## Ignite- best use

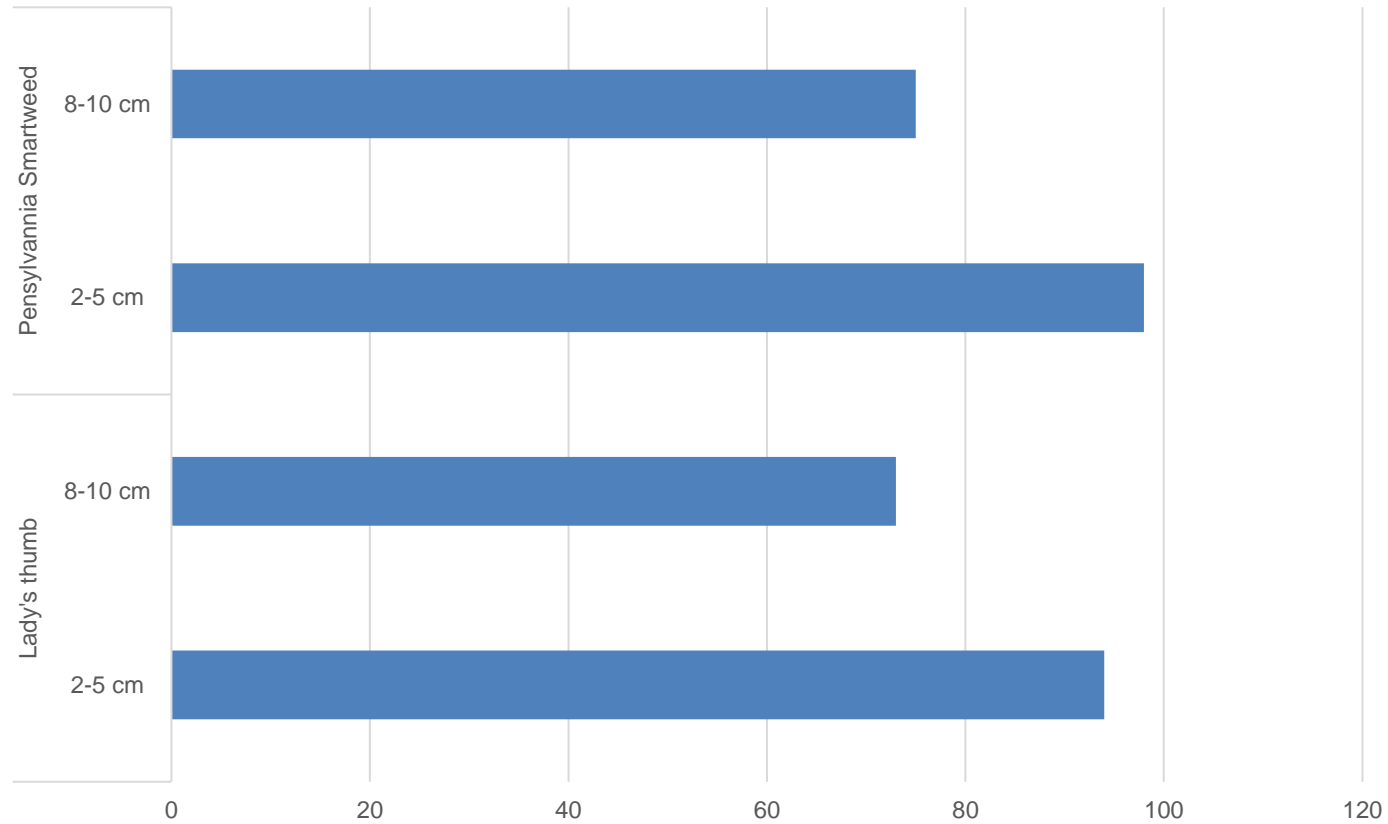
- 4 hour rain-free interval
- Limited translocation within the plant, but may from leaf base toward tip
- Translocation is better in the light than dark
- Therefore thorough spray coverage is critical



## Ignite- best use

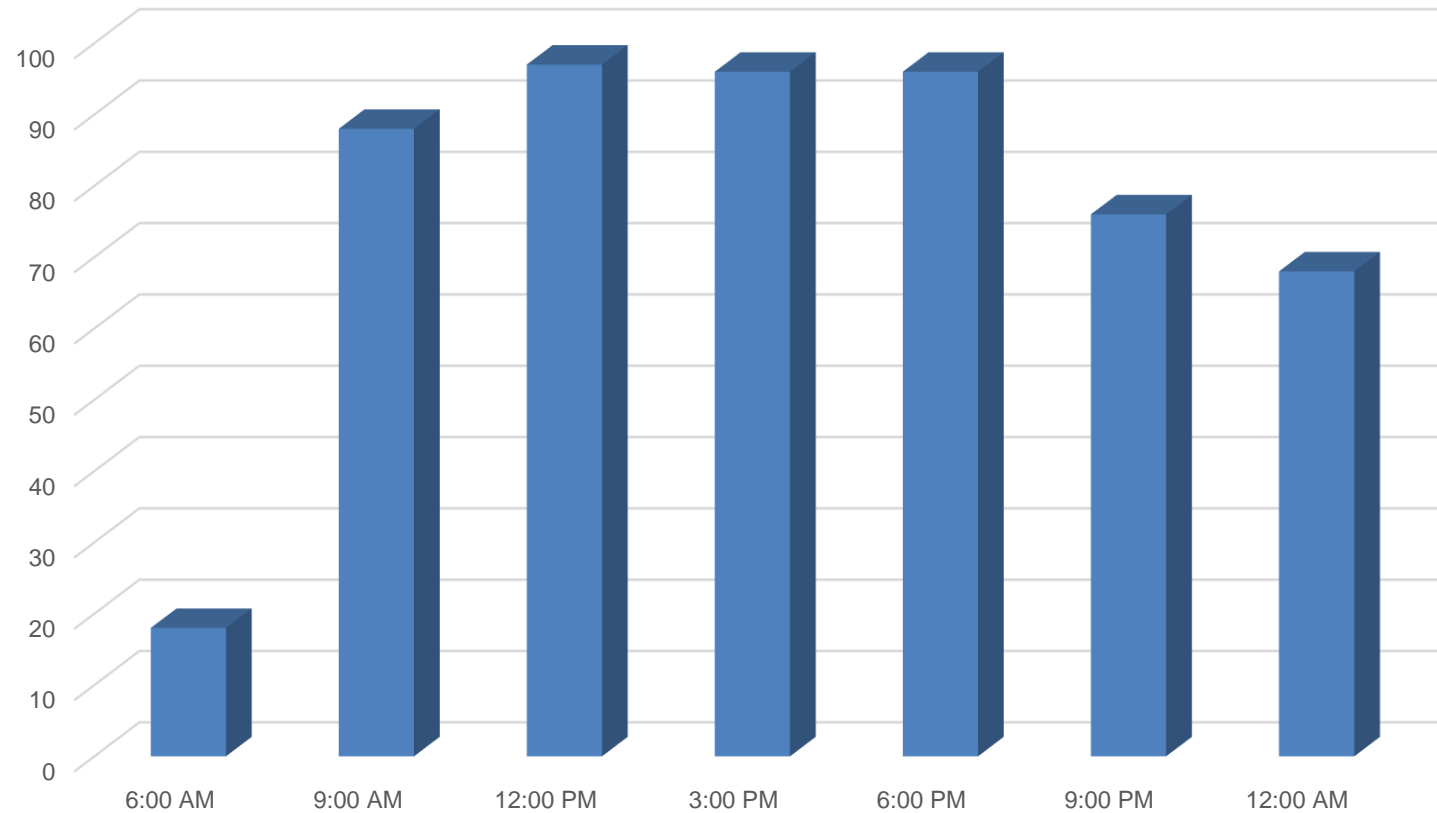
- Most effective under bright sunlight, high humidity and moist soils.
- Smaller weeds
- During “bankers hours” leaf angle and rate of uptake
- Water volume to ensure coverage 200 l/ha or 20 gallons/ac or 80 l/ac

Effect of weed height on % weed control



- > 95% at 2-5 cm versus < 75% at 8-10 cm
- Source: Corbett et al., 2004

Velvet Leaf weed control versus Time of Day



- 18% at 6:00 am versus 96 % at 12:00
- Source: Sikkema

## Control is reduced when:

- Weeds are large
- Cold temperature
- Drought conditions
- Low humidity
- Rainfall occurs within 4 hours
- Heavy dew fog or mist
- Poor coverage- maybe due to high weed density
- Applications early morning, evening or very late
- \$20.00-\$45.00/ac make it count

## Alternative to Ignite

- Do not make more than 2 applications per year. Do not apply more than 6.7 L/ha (2.7 l/ac) total product in one season.
- 40 days PHI
- Aim
- Aim Plus a Graminicide

## Aim

- Similar to Ignite
- Max 2 applications/year, 30 day PHI
- No residual control of weeds
- Any age of vine but should be protected with grow tubes or directed spray
- Weak on grasses
- Coverage is very important as it does not translocate so.... surfactant is required
- Not as weather sensitive as Ignite but weeds need to be actively growing therefore sometimes saved for early spring or fall

# Venture, Poast Ultra + Merge, Assure II + Surfactant

- All post emergent grass herbicides with no residual control
- Weakness is bluegrass, also Poast is weak on quack grass
- Very safe on the crop, watch the PHI (its either 14 or 30 days)
- New and established plantings
- Tend to be very slow acting so be patient
- Apply when the grasses are generally in the 1-6 leaf stage, check label for exact timing based on species

-Poast Ultra is coming off the market this year

# Residual Products

## Why

- Saves application time
- Weeds don't become well established before the next application
- Increases weed free period, takes the pressure off you and the crop
- Gets you through tight periods
  - Sensitive timings
  - Timings of labor shortages
  - Harvest timings



# Alion

- Pre emergent to the weeds, residual product for both grass and broadleaf weeds
- Established plantings of at least 5 years
- Do NOT apply prior to any type of soil disturbance, including hilling/dehilling
- Extremely effective product
- PHI is 14 days, apply once per growing season
- Can be applied throughout the growing season

# Chateau

- Pre emergent to the weeds, residual product for broadleaf weeds
  - Weak on grasses
- Established plantings of at least 2 years
- Minimize soil disturbance after applying
- Max 2 applications per year
- Extremely effective product on a broad range of weeds
- PHI is 60 days
- Can be applied spring or fall

# Authority

- Pre emergent to the weeds, residual product for broadleaf weeds
  - Weak on grasses, Ragweed
- Established plantings of at least 1 year
- Minimize soil disturbance after applying
- Max 1 applications per year
- Extremely effective product, weak on Ragweed
- PHI is 3 days
- Can be applied spring or fall
- Avoid application to green bark and minimize drift to green tissue, use hooded sprayer

# Devrinol

- Pre emergent to the weeds, residual product for broadleaf and grass weeds
  - Weak on mustards, lady's thumb                      good on groundsel
- Established plantings
- Max 1 applications per year
- PHI is not mentioned
- Must have rain fall after application (maximum 7 days spring in fall/spring or 2 days in summer) or lose effectiveness of the product
- High use rate may not be cost effective for some growers

# Frontier Max

- Pre emergent to the weeds, residual product for broadleaf and grass weeds
  - Strong on annual grasses, weak on most broadleaves      good on nightshades, pigweeds, just ok on lambsquarters
- New and Established plantings
- Max 1 application per year, DO not apply after bud swell bloom or first rapid growth
- PHI is 30 days
- Rainfall should occur after application
- Can provide season long control of labeled weeds

# Prism

- POST emergent to the weeds, short residual product for broadleaf and grass weeds
  - Strong on grasses and annual broadleaf weeds
- Established plantings of at least 1 year
- Must use with a surfactant (think post emergent activity)
- Max 2 application per year or a total of 60 grams/ha
- PHI is 21 days
- Broadleaf weeds at the 4-6 leaf stage, Quackgrass 3-6 leaf stage
- Relatively slow to work
- Short residual control

# Chikara

- Group 2 similar to Prism but longer residual
- Can be applied anytime through the year best for spring or late fall application
- Controls many grass and broadleaf weeds with both PRE and POST emergent activity
- 3 year and older grapes
- One application/year

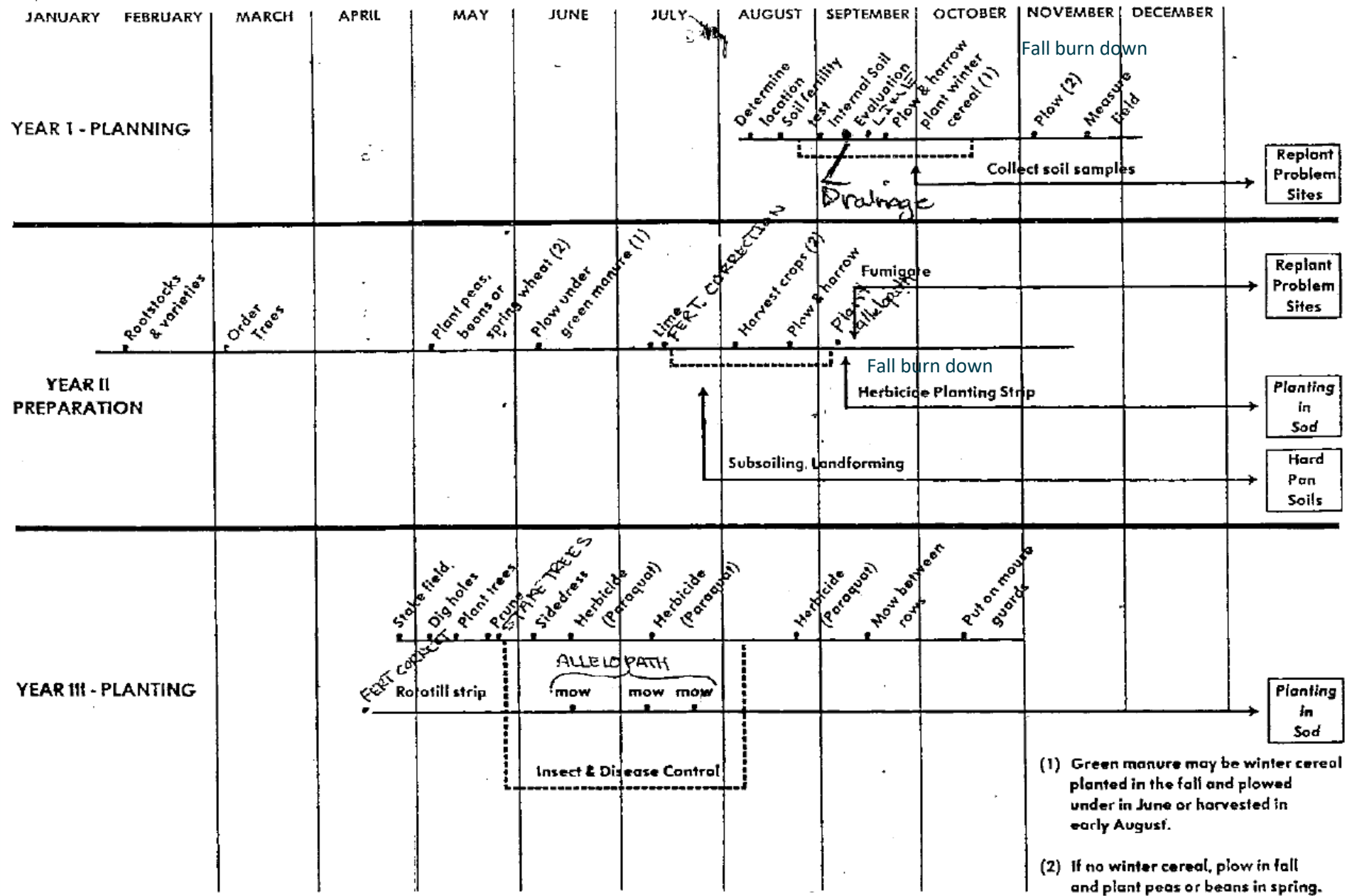
## There are others...but

- Infrequently used
  - Expensive?
  - I do not have experience
  - Odd use pattern
- 
- Biolink, Serene organic?
  - Casoron cost effective? Granular to apply? But very effective



# New Planted Vineyard

Weed Control Starts Two Years Out



(1) Green manure may be winter cereal planted in the fall and plowed under in June or harvested in early August.

(2) If no winter cereal, plow in fall and plant peas or beans in spring.

# Start now to prepare for the establishment year

- Cover crop sequence: Fall oats-Spring Mustard-Summer Sorghum Sudan Grass
- Fall planted oats, Mustard planted followed up with a mix of Sorghum-Sudan Grass or Pearl Millet mixed with Daikon Radish
- Keep tillage to a Minimum, don't let weeds go to seed...
  - Momma said “ one year's seeds, are seven year's weeds”

# New Planted Vineyard

## The planting year.....

- What weeds will we have to deal with?
- What typically happens in that year?

	Herbicide Program for New Vineyard	Re Entry Period	Pre harvest Interval
	- or plantings with new inter planted vines		
Year one	Plant		
	Quickly install grow tubes cover ground end with dirt		
	Apply Frontier before weeds emerge	24 hours	
	Late season Aim or Grass herbicide (Venture, Poast, Assure)	12 hours	
			- depending on the weeds present at the time
			- don't let the weeds grow large before addressing them
	Late Fall Cleanup Aim or Grass herbicide weeds must be still actively growing	12 hours	
Year two	Run things the same		
	Frontier applied before weeds emerge in spring		
	can use Prism if required mid to late season	12 hours	
	Or Aim or grass herbicide (Venture, Poast Assure)	12 hours	
	- what is the goal in year two.....vines reach the top wire		

# Interplanted vineyard

## Things to think about

- Will you be able to spray most of the vineyard as mature vineyard and skip where the young plants are inter planted
  - That takes a good operator, are they up for that?
- Have the weeds controlled with Roundup (perennials) before putting in the new vines
- Filling holes use weed free soil from outside of the vineyard?
  - Depending on what was used as a residual herbicide previously you will not want it in the root zone of the young vine

	Herbicide Program for Inter Planted Vineyard	Re Entry Period	Pre harvest Interval
Year one	Early spring roundup and wait.....Apply regular program to majority of vineyard????	12 hours	
	Plant		
	Quickly install grow tubes cover ground end with dirt		
	Apply Frontier before weeds emerge and before bud break on vines	24 hours	
	Late season Aim (carefully) or Grass herbicide (Venture, Poast, Assure)	12 hours	- depending on the weeds present at the time - don't let the weeds grow large before addressing them
	Late Fall Cleanup Aim or Grass herbicide weeds must be still actively growing	12 hours	
Year two	Run things the same		
	Frontier applied before weeds emerge in spring		
	can use Prism if required mid to late season grass herbicide if required	12 hours	
	Aim though the season as required (carefully)		

# Bringing up renewal canes from below

## Things to think about

- Bring up renewal cane from below
- Is it going to get burnt off or damaged by contact herbicides
- When do these buds break, when does this wood harden off
- How many do we need to keep



Timing	Herbicide program for renewal canes	Re Entry Period	WSSA	Pre harvest Interval
Very Early Spring	Aim 32 ml/ac	12 hours		14 30 days
Pre bud break	Agsurf 2.5 l/1000 l of water			
	Alion 151 ml/ac	12 hours		29 14 days
- minimize exposure to vine				
	Grass herbicide if only grasses present	12 hours		1 14-30 days
Approaching Harvest	Prism 24 grams/ac	12 hours		2 21 days
	Agsurf 2 l/1000 l of water			
	Very carefully spot spray with Ignite if needed			

# Weed Program where hilling for winter protection

## Things to think about

- Annual weeds maybe more of a problem in this system
- Perennials may survive the hilling process
- There may be shallow root disturbance
- Herbicides with really long residuals should not be incorporated into the root zone
- Cultivation may disturb the weed barrier at the soil surface and negate weed control

# Hilling

- Important that the soil is clod free in order to make a proper hill



Timing	Herbicide program for hilling for winter protection	Re Entry Period	WSSA	Pre harvest Interval
hill removal...allow the soil to settle somewhat				
Pre Bud break	Aim 32 ml/ac ?	12 hours		14-30 days
	Agsurf 2.5 l/1000 l of water ?			
	Alion 152 ml/ac (assume an establishment of 5 years)	12 hours		29-14 days
Post fruit set	Authority 118 ml/ac	12 hours		14-3 days
	Ignite 1.2 l/ac	24 hours		10-40 days
	grass herbicide if needed	12 hours		14-30 days
Approaching Harvest	Prism 24 grams/ac	12 hours		2-21 days
	Agsurf 2 l/1000 l of water			
Post harvest 2-3 weeks before hilling				
	Roundup .7 l/ac	12 hours		9-14 days

# Closing Thoughts

- Get out of the cycle of out control weeds and then stomping them out mid season with post emergent products
- Use residual herbicide to get through critical periods and manage labour
- Some residual herbicides should not be incorporated into the root zone during hilling
- Tillage begets more weeds
  - Dilutes residual herbicide
  - Brings more weed seeds to surface



	Shielded Application	Pre Emergent	Post Emergent
	Broadspectrum		Grass Herbicides
	POST Emergent		
Early years- Establishing Vineyard			
	Aim	Frontier Max	Assure
	Biolink		Poast Ultra
	Tiafenacil		Venture
	Serene		
Established Vineyard			
	Aim	Alion	Assure
	Axe	Authority	Poast
	Beloukha	Casoron	Venture
	Biolink	Chateau	
	Chikara	Chikara	
	Glyphosate	Devrinol	
	Ignite	Frontier	
	Prism	Karmex	
	Serene		
	Tratenacil		



Questions ?

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