

Vineyards Supplies & Equipment CMREC, Upper Marlboro Farm



David Myers
Extension Educator

Vineyard Reckoning

The Southern Maryland Vineyard Team wishes to share the account reckoning of the Southern Maryland research vineyard planted at the Upper Marlboro Research and Education Center. The research vineyard contains 25 viniferous varieties or varietal clones, and 2 hybrids that are used for winemaking. The project goal is to screen for varieties with good fit for the development of a Southern Maryland wine industry. The project has progressed well. The vines were planted on April 4, 2001, and the trellis development has been completed this summer. The vineyard is comprised of 32 vines for each of the 27 varieties, having 8 vines in four randomized replications. The 864 vines are spaced 10' between the rows and 6' within the rows, occupying a total area of 1.19 acres.

The following tables reveal the actual itemized costs for vineyard supplies and labor. A complete breakdown of labor activity and time involved in the accomplishment of tasks gives good insight to the labor investment required.

Vineyard Supply Log Upper Marlboro REC

March 1, 2001 to August 31, 2002

MATERIAL BURDEN 2001	COST
864 - Grapevines	
Sub Total	3,072.19

Trellis Materials	
180 - 3" x 4" x 8' Treated Posts CCA	1,035.00
3 - 10 lb units of 11 GA Galvanized Brace Wire	26.07
60 - 4"-5"x10' End Posts Treated CCA	597.00
4 - 6"x6"x10' End Posts Treated CCA	74.76
4000' - 12.5 gauge aluminum clad wire	51.00
1651' - 12.5 gauge aluminum clad wire	19.81
5000' - 14 gauge galvanized wire	434.00
38 - Tighteners	70.30
5 - Packages 100 Sleeves 14-16 gauge	33.00
1 - Package 100 Sleeves 12.5 gauge	9.00
3 - 10 lb. Galvanized Smooth Wire 11 gauge	26.07
1500 - Bamboo Supports	243.60
72 - Earth Anchors	576.00
2 - Max-Tappers & Vine Ties	107.13
2 - 50 lb Falcon Fescue	109.90
1 - 50 lb K 31 Fescue	49.50
Shipping/Handling	69.07
Sub Total	3,531.21

Pesticides	
2 - Gramoxone Extra 2.5 gal	159.90
2 - Surflan 2.5 gal	459.80
1 - Devrinol 59 DF - 4 lb.	36.00
2 - Captan 5 lb bags	31.95
1 - Nova 1 lb bag	85.00
5 - Benlate SP 1 lb bag	89.95
1 - Nematicur - Nematicide 2.5 gal	198.00
1 - Guthion 2.5 gal	120.00
2 - Lorsban 4E 2.5 gal	121.95
1 - Defac- Adjuvant Spreader 2.5 gal	22.50
Sub Total	1,325.05

MATERIAL BURDEN 2002	COST
Trellis Materials	
Miscellaneous Irrigation Supply	69.58
Miscellaneous Irrigation Supply	58.83
8 - Brace Wire 10 lb units of 11 gauge	65.55
Galvanized Nails 60 - 22.5 lbs & 12D - 50 lbs	56.52
2000 - Catch Wire Clips & Vine Training Supplies	190.00
500 - Crimp Sleeves for Wire	38.00
3/16" Chain	292.50
10,000' Trickle Tape Roll	136.00
40 - Trickle Tape Connectors	20.40
Sub Total	927.38

Pesticides	
PPE Equipment	315.24
1 - Captan 50W 5 lb bag	59.80
4 - Dithane 12 lb units	112.00
1 - Thiodan 2.5 gal	79.90
1 - Lannate 1 gal	127.50
2 - Sevin 4L 2.5 gal	83.40
5 - Vendex 1 lb units	124.75
1 - Pounce 1 gal	149.00
Sub Total	1,051.59
Total 2002	1,978.97
Grand Total 2001 & 2002	\$9,907.38

VINEYARD LABOR LOG

Upper Marlboro REC

March 1, 2001 to August 31, 2002

LABOR BURDEN 2001 & 2002

MCE Investigators, CMREC Facility Labor and Volunteers

Task	Hours
Layout of Vineyard Site	9
Layout Posts and Brace Anchors	6
Auger Holes	10
Apply Fertilizer, Lime - At Planting	3
Vine Planting	57
Drive Posts	19
Auger in Anchors	15
Brace Wire	18
Cordon Wire	20
Trickle Irrigation Lines	14
Bamboo Training Stakes	7
Herbicide Applications 2001	19
Fungicides/Insecticides 2001	10
Vine Training/Pruning 2001	85
Nematicide	3
Hoe Weeds	8
Mowing	10
Drill Fescue Alleys	2.5
Fertilizer Lime, Litter 2002	4.5
Trickle Irrigation Lines	40
Herbicide Applications 2002	8.5
Fungicides/Insecticides 2002	17
Vine Training/Pruning 2002	118
Plot Evaluations 2001/2002	12
Catch Wire Placement	70
Hoe Weeds	26
Mowing, Replant Fescue Alleys	11.5
Harvest	10
TOTAL HOURS	634

Total Labor Value - 634 hrs @ \$15.00/hr = \$9,510.00



<http://annearundel.umd.edu/files/VineyardReckoning.pdf>

Vineyard Labor Log Upper Marlboro REC

LABOR BURDEN 2001 & 2002 MCE Investigators, CMREC Facility Labor and Volunteers



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Essential Small Farm Equipment & Tools

*Add Fun!
Remove Drudgery!*



**R. David Myers
Extension Educator**

Keep a tidy and well organized shop

Note Required Postings



COOPERATIVE EXTENSION WORK IN AGRICULTURE
AND HOME ECONOMICS

ANNE ARUNDEL COUNTY

Scale 1" = 4 miles

U. S. Department of Agriculture
and State Agricultural Colleges
cooperating

States Relations Service
Office of Extension Work, South

REPORT OF WORK OF THE COUNTY AGENT

CALENDAR YEAR 1918







(Due December 31st)

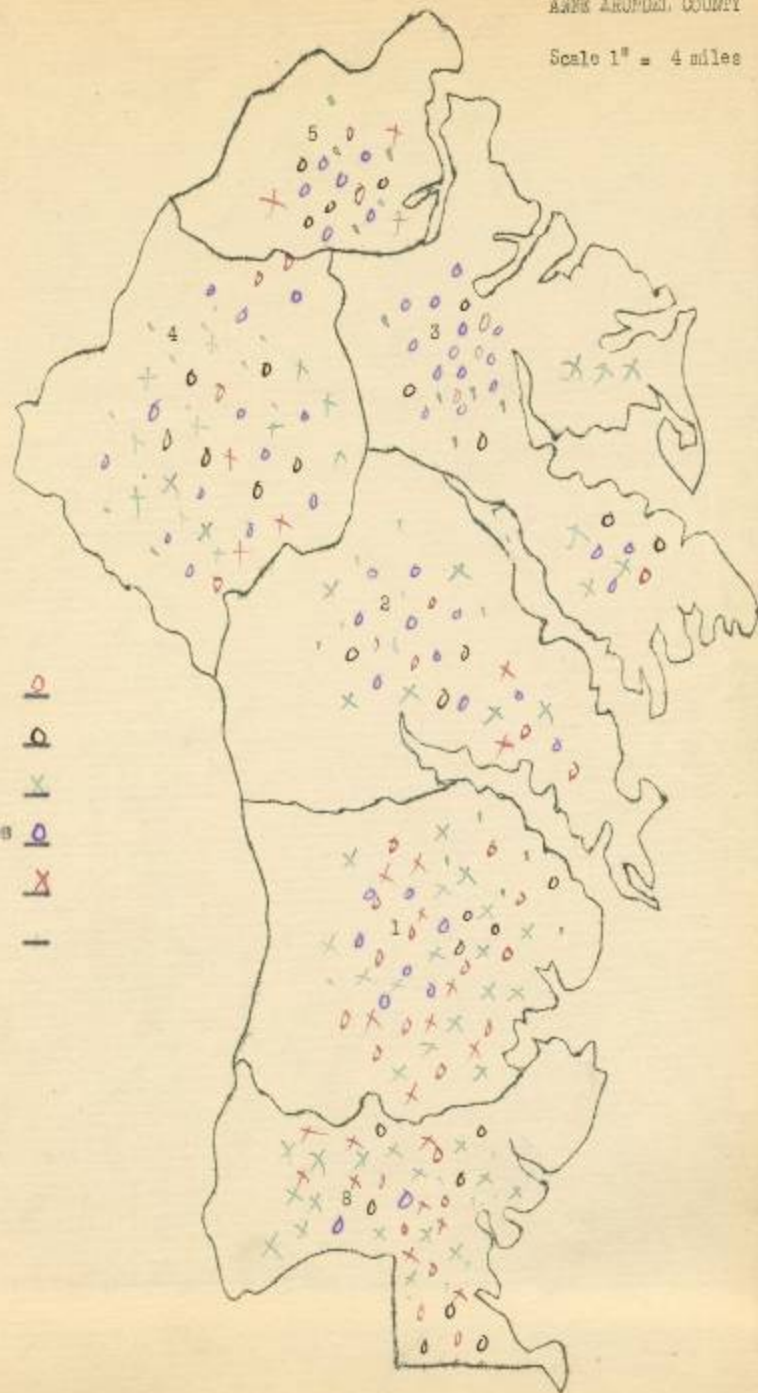
State Maryland County Anne Arundel

HENRY C. WHITEFORD,
County Agent,

Report of ANNAPOLIS, MARYLAND County Agent

From January 1 to December 31, 1918

Poultry 
Orchard 
Tobacco 
Truck Crops 
Soils 
Legumes 



Approved:

State Agent

Date Forwarded

Director of Extension Work



GRAPE CULTIVATION.



Grapes-before pruning



Grapes-after pruning.

Small Tools and Equipment for Commercial Vineyards

PRUNING

- Pruning Shears and Loppers, Folding Saws – traditional, electric, pneumatic
- Hand Held Scale
- Thermos, Walk-man

HARVEST

- Fruit Picking Shears or Knives, sharpening stones
- Grape Lug Boxes or Buckets
- Grape Bins

PLANTING & TRELIS INSTALLATION

- Basic Hand Tools – hammer, wrenches, screwdrivers, etc.
- Shovels, Post Hole Diggers, Pick, Tampers, Water Trough, Buckets
- Nicopress or Gripple Tool, Come-along, Wire Cutters, Fence Hammer,
- Small Generator, Handheld Auger, Post Pounder (metal stakes)

SUMMER WORK

- Hand Hoes, Max Tapeners, Tying Tape Wire Clips, Ag Tyes, etc.
- Backpack Herbicide Sprayer'

CLOTHING

- Personal Protective Equipment (PPE)
- Winter and Rain Gear

MISCELLANEOUS

- First Aid
- Shotgun, Rifle, Traps
- Wire, Duct Tape



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We provide high quality products for everything between the vine/plant and the fruit/wine. Everything related to trellis, training, wildlife control, harvest, pruning, irrigation, winemaking equipment and so much more!

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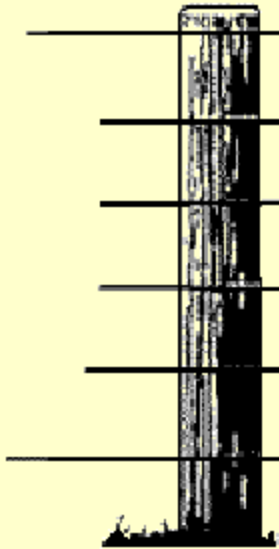
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Fence Guide

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- Books/Videos
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 - Indicators
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 - Quik-Splice
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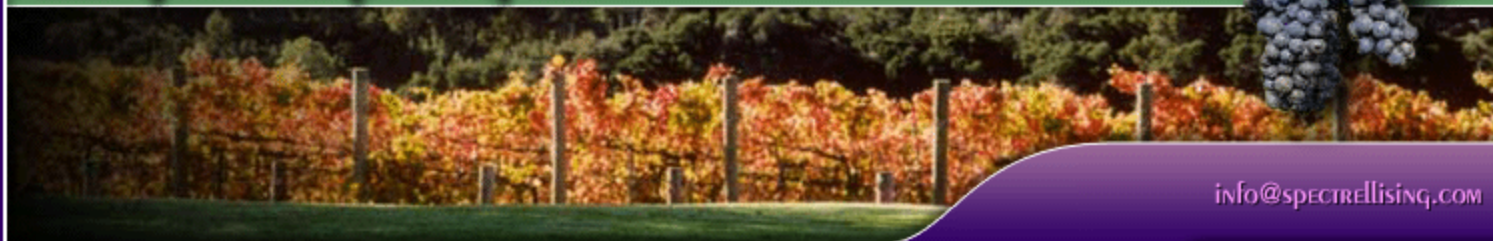
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FEATURED PRODUCT



Mannwerks Steel Post

- Designed to be gentle on mechanical harvesters
- Extremely stable in soil

Spec Trellising is a family owned and operated trellis supply company. Our goal is to develop and maintain long-term relationships with our customers. We accomplish this by working closely with our customers to meet their needs, providing the highest quality vineyard trellis and trellis related products with unsurpassed service.

We believe that only top quality, long lasting trellis materials should be used for grapevine trellising. While lower quality products can undoubtedly be found, it is our belief that grapevine trellising is not the place to cut corners. Trellising



Fruit Establishment Tactics to Maximize Our Coastal Plain Advantage



R. David Myers
Extension Educator

Early Yields: Balanced Rapid Growth

First year growth!



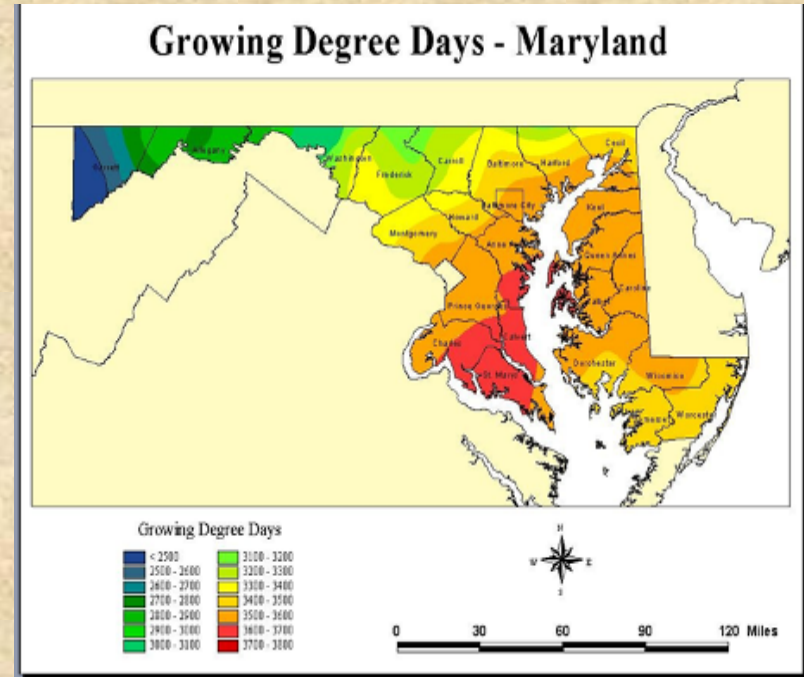
- ✓ Irrigation is Essential: *"If Plants Could Only Moo!"*
- ✓ Water to Keep Your Investment Growing.



Early Yields

Balanced Rapid Growth

- ✓ Long Hot Growing Season.
- ✓ Ignore the Textbooks & Northern Neighbors.
- ✓ Fruit the Second Year!



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GARDEN KITS

These kits are ideal for the beginner. They include all you need to get started.

KIT-A

This kit is designed for a 2,000sq' garden (15 rows of 100')

Part #	Description	Quantity
AGP-702	Filter 150 mesh FHTxMHT	1
PRLG10	Press Regulator .1-7gpm 10psi	1
FAS16	Loc-Eze Adaptor FHTx16mm Hose	1
BS16-100	Hose 16mm x 100'	1
FTT16	Loc-Eze Tee 16mm	1
FEE16	Loc-Eze Elbow 16mm	2
FCC16	Loc-Eze Coupler 16mm	3
AGP-616	Figure 8 16mm Line End	2
SPT-058	Spot Systems Valve 16mm Insert	2
508-12-450	8mil 12" .45gpm/100'	1500'
A1-TV5B250	Tape x .25 Barb Adaptor w/ Valve	15
AGP-001	Tape x Tape Loc Coupler	3
DP-E	Punch Handle w/ Eject	1
DP-3G	Punch Tips; Green; 3 Pack	1
TRI-ECON	Economy Tape End Closures	15
AGP-650	Goof Plugs	5

KIT-A

PRICE

\$145.85

Installation Instruction:

1. Screw together the garden faucet adaptor to the filter.
2. Screw the press regulator to the filter.
3. Screw the hose adaptor to the press regulator.
4. Screw the assembly to the faucet.
5. Insert the hose over the adaptor and secure with clamp.
6. Arrange hose as desired across the ends of the rows using the valves and fittings included. Secure w/ clamps. Do not install the plugs or line ends yet.
7. Punch a hole at each row and connect the Tape-Loc x .250 Barb Adaptor.
8. Cut the tape to the desired length, install onto the adaptor and run down the row. The tape can be buried or layed on the surface.

KIT-B

This kit is designed for a 18,000sq' garden (30 rows 225')

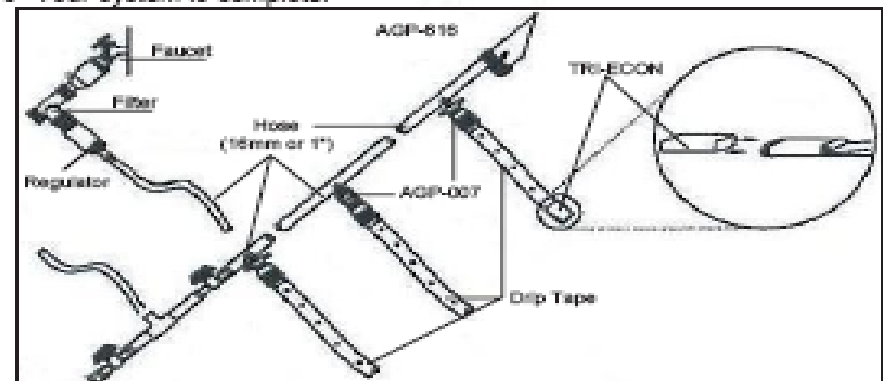
Part #	Description	Quantity
AGP-707	Filter 150 mesh w/ Flush ¾ MIPT	1
FHTXFPT	Adaptor ¾" FHT x FIPT Brass	1
SEN-2015	Press Regulator 2-20gpm 15psi	1
1436-102	Adaptor ¾" MIPT x 1" Insert	1
BS26-250	Hose 1" x 250'	1
1401-010	Insert Tee 1"	1
1408-010	Insert Elbow 1"	2
1429-010	Insert Coupler 1"	2
1449-010	Insert End Plug 1"	2
6816	Clamps for 1" Hose	14
SPT-105	Spot Systems Valve 1" Insert	2
508-12-220	8mil 12" .22gpm/100'	7500'
A1-TV5B250	Tape x .25 Barb Adaptor w/ Valve	30
AGP-001	Tape x Tape Loc Coupler	3
DP-E	Punch Handle w/ Eject	1
DP-3G	Punch Tips; Green; 3 Pack	1
TRI-ECON	Economy Tape End Closures	30
AGP-650	Goof Plugs	5

KIT-B

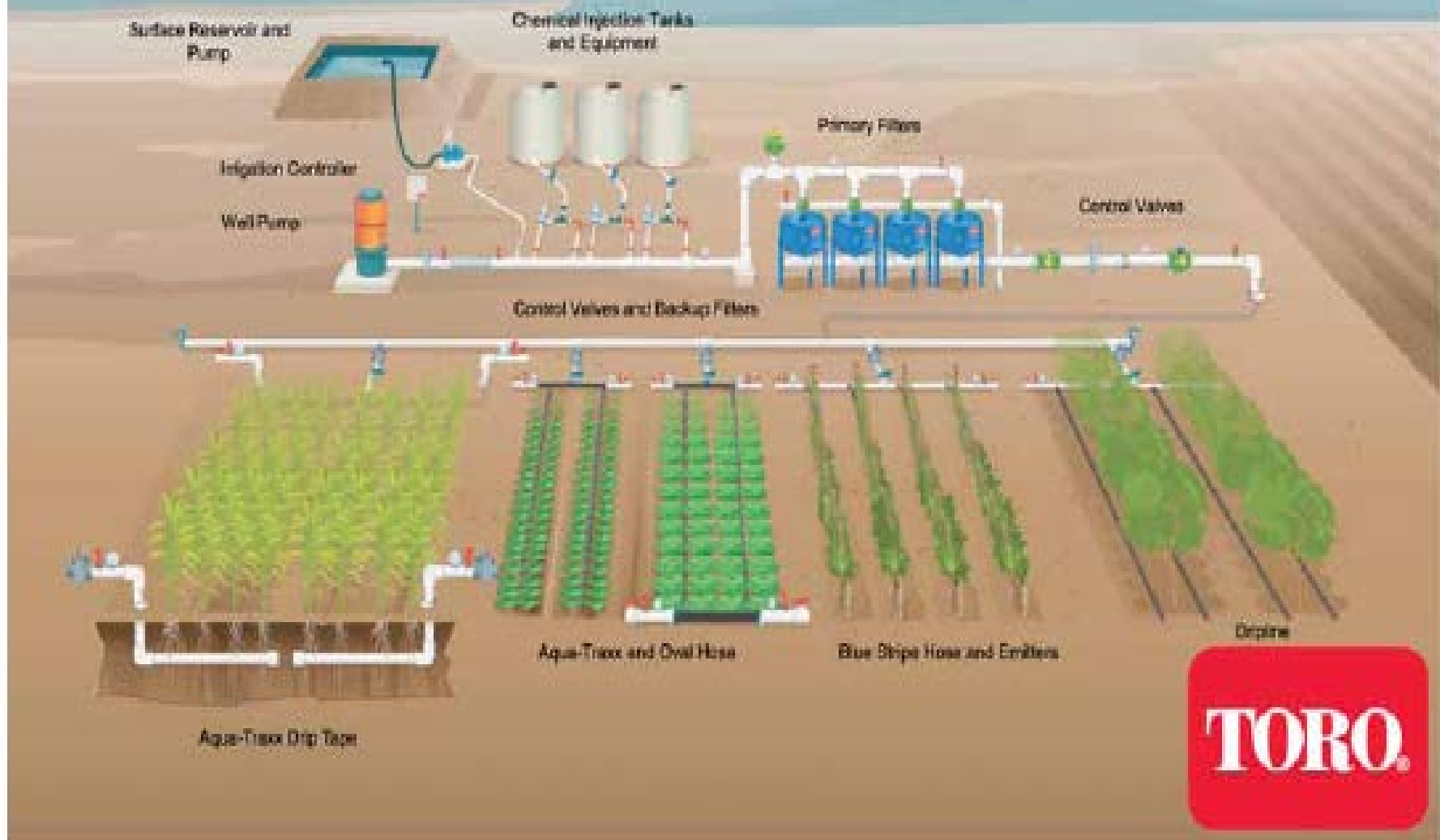
PRICE

\$350.95

9. Turn the water on and allow to flush any debris through the ends of the lines.
10. Turn off the water and install the plugs, or line ends on the hose.
11. Turn the water on and let it flush out the lines of tape.
12. Beginning with the closest line, begin closing the tape lines. Simply fold the end over two or three times and place the economy closure over the folds to keep them in place.
13. Your system is complete!



Typical Drip System Layout



- Product Index**
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Gasoline trimmer. Commercial engine with quick start electronic ignition. 30 in carbon steel blades guaranteed to cut up to 1 in thick. Sealed gas tank runs up to 6 hours on a gallon.



Item #	In Stock	Price
22lw	<u>10/26/2006</u>	\$338.99

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Other Suggested Products



224D

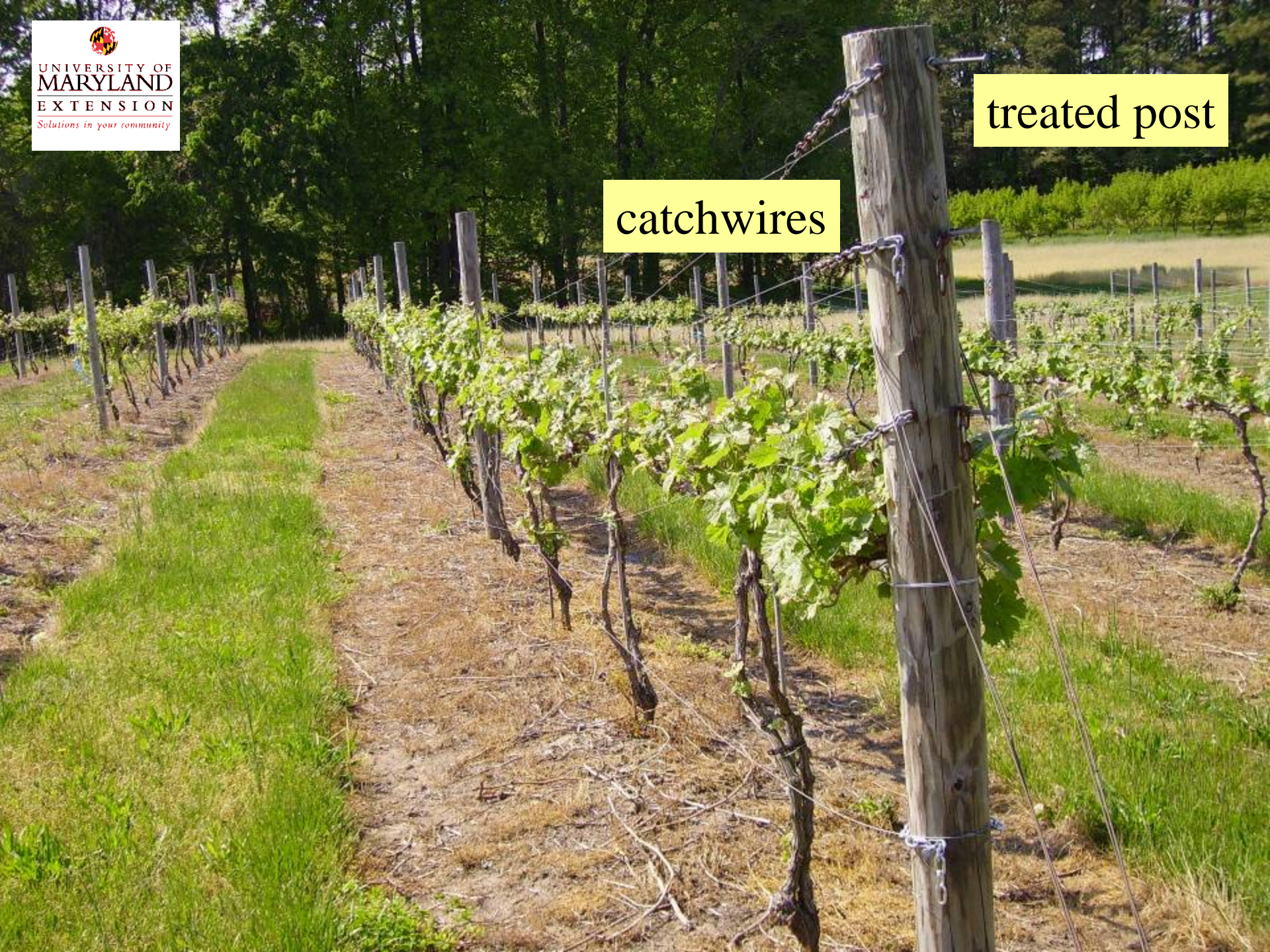
MANTIS

9101R

LB012

treated post

catchwires





34-A

HENRY C. WHELFORD,
County Agent,
ANNAPOLIS, MARYLAND.



The above show types of tractors in use in the County, of which we now have 24 in operation, most of them giving satisfaction and have proven a valuable help the past year in increasing crop production in the County, in all cases where the County Agent was consulted, (As he usually was) it was recommended that the complete outfit be purchased and thus secure the greatest amount of service from the tractor. The Tractor is here to stay, and it is hoped that there will be some effort at Standardization along this line.



34-B

HENRY C. WHELFORD,
County Agent,
ANNAPOLIS, MARYLAND.



#1
This shows the type of plow usually used with the tractor equipment and which has done good work in the County.

#2
This shows the Double Disk followed by the Smoothing Harrow, a combination hard to beat on light lands, and easily handled by the 8-16 tractors in this section, a firm well pulverized seed bed results in the use of these two implements, and they have done wonders toward greater crops.

#3
This shows the one horse one man cultivator which is losing its popularity except in the later cultivations of the crop. For general use this type of cultivator being eliminated.

Large Equipment Inventory for a Commercial Vineyard

THINGS YOU REALLY SHOULD HAVE:

- Tractor – 4WD
- Spray Cab w/ filter system
- Grape Hoe
- Post Pounder
- 3 Point Auger
- Spinning Jenny
- Mower/Brush Chopper
- Herbicide Sprayer
- Fungicide/Insecticide Sprayer
- Vine Hedger
- Reliable Farm Pickup Truck

THINGS IT WOULD BE NICE TO HAVE:

- ATV or Mule
- Cultivator/Seed Drill
- Soil Spader
- Flatbed Truck
- Grape Bin Trailers
- Bird Netting and/or Pyrotechnic Devices

OTHER IMPORTANT ITEMS:

- Reliable Water Source
- Nurse Tank
- Electricity
- Shop/Office

DREAMING: Prepruner, Leaf Plucker, Mechanical Harvester, Over Row Tractor with 3 row spray head, Mechanical Wire Lifter and Shoot Positioner, Sauna, Swimming Pool and Massage Therapist.

Calibration & Adjustment

- Pay Close Attention to the Operators Manual
- Set Machine for Field Conditions
- Stop! - If Outcome is Not Desirable to Readjust
- Machinery May Require Added Attachments for Proper Jobbing



What is the most important item a farmer should take to the field for equipment adjustment?

Maintenance

- Battling Dirt & Friction
- Keep Equipment Clean to Spot Trouble & Service
- Lubricate and Grease on Schedule



What are symptoms of a failing part ?

Tasking & Sequencing

- The “Narrow Window” Concept - Plan Accordingly
- Careful Thought Before Heading to the Field
- Pre-Determine a Tasks Time Requirement
- Machinery Usage at Economic Maximum



How can we measure machinery being used at its economic maximum?



March, 2001





cordon



April 24, 2001

Trickle tape



Max Tapener

bamboo

Herb Reed



Ben Beale

Spraying Equipment

- Understanding Sprayer Plumbing
- Agitation & Bypass
- Nozzle Tip Selection
- Boom Height & Target
- Boom Pressure Gauge



50 gal Low Volume Vineyard Sprayer



Why is the spray pressure always less at the pump gauge than at the boom gauge?

Spraying Equipment

- Understanding Sprayer Plumbing
- Agitation & Bypass
- Nozzle Tip Selection
- Boom Height & Target
- Boom Pressure Gauge



<http://www.teejet.com/english/home.aspx>



Why is the spray pressure always less at the pump gauge than at the boom gauge?

Spray Application

- **Chemical Mixing Sequence:**
Surfactant-WP-DF-EC-L-Fertilizer
- **Sprayer Calibration:**
Ground Speed X Pressure X Nozzle Output
- **Calibrate When a Product or Sprayer Component Changes**



A farmer discovers a leak while spraying – What should he do?

Special Sprayer Maintenance

- Flush & Rinse Sprayer as Required by Products
- Check Nozzle Output Uniformity
- Clean & Lubricate Pump and Other Components
- Inspect for Leaks
- Winterize



[RM 65-110 Vineyard Sprayer](#)



What procedure insures thorough rinsing of a sprayer?

Vineyard Sprayers

RM 65-110 Vineyard Sprayer



Model DP10P50P Air Sprayer

RM 25 Utility w/ 5 Nozzle Boom

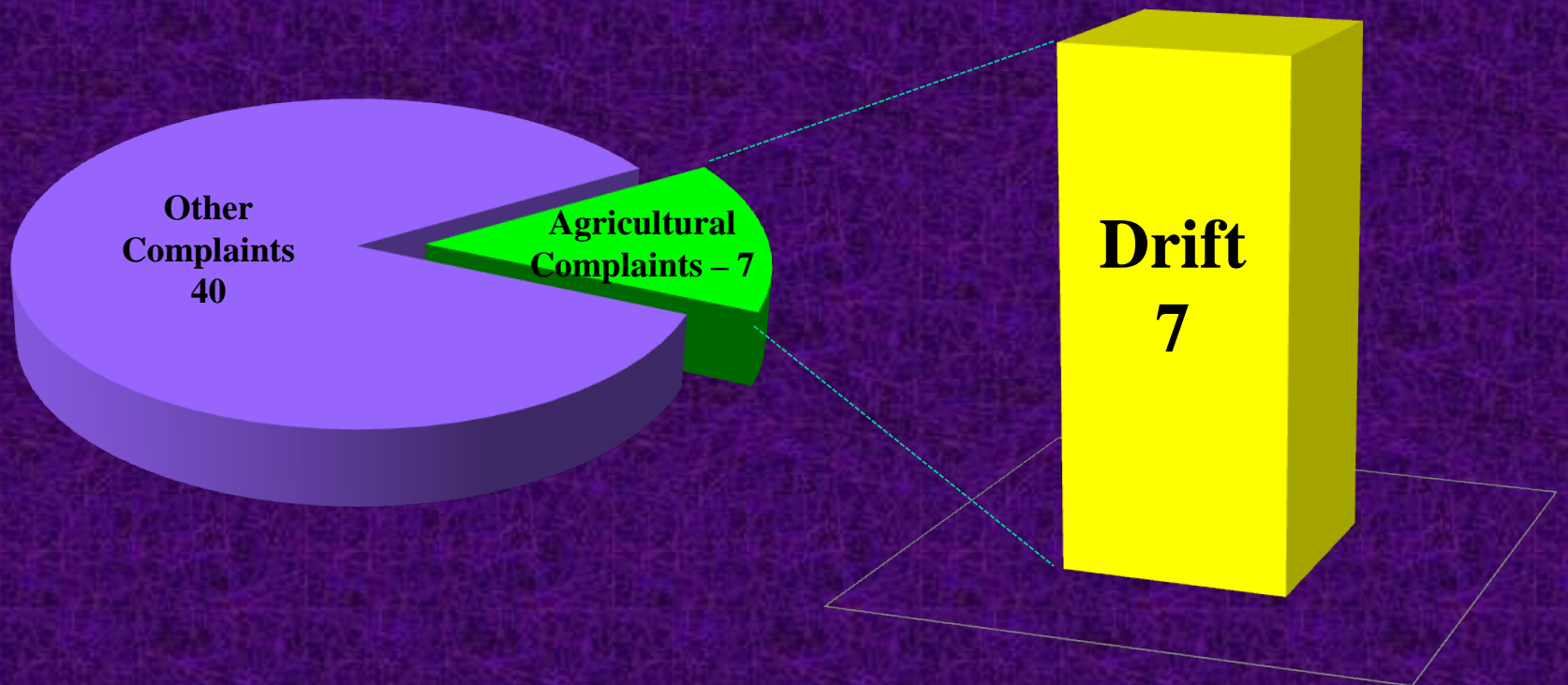


RM 55 Utility Sprayers



2011 Agricultural Investigations

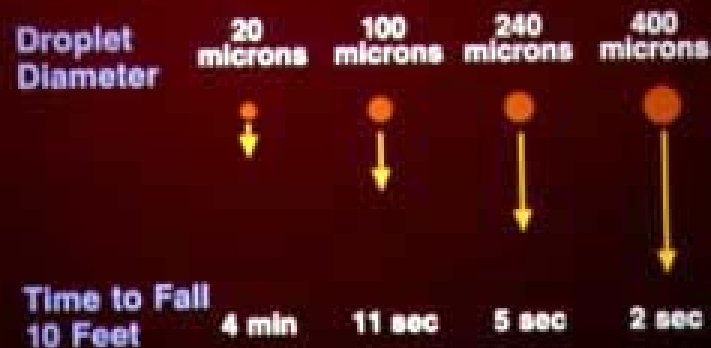
Type of Complaint



Distance Water Droplet Drifts While Falling 3ft in a 5mph wind

<u>Size</u>	<u>Microns</u>	<u>Drift Feet</u>
Very Coarse	600	0.3
Coarse	500	0.4
Medium-Coarse	400	0.7
Fine	200	5.5
Very Fine	100	26.0
Ultra Fine	50	88.0

Comparison of Droplet Fall Rates



Note: Spray particles under 50 microns in diameter may remain suspended in the air indefinitely or until they evaporate.

Comparison of Micron Sizes (approximate)

- 2000 μm • #2 Pencil lead
- 850 μm • paper clip
- 420 μm • staple
- 300 μm • toothbrush bristle
- 150 μm • sewing thread
- 100 μm • human hair



UNIVERSITY OF
MARYLAND
EXTENSION
Solutions in your community

AI TeeJet™



30-90 psi

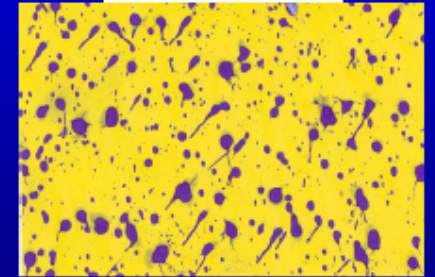
AI TeeJet™



Droplet Size


VC

Very
Coarse




**Excellent for
Systemic Herbicide**


Nozzle Classification System

	PSI										
	15	20	25	30	35	40	50	60	70	80	90
TT11001	C	M	M	M	M	M	F	F	F	F	F
TT110015	C	C	M	M	M	M	M	M	F	F	F
TT11002	C	C	C	M	M	M	M	M	M	M	F
TT11003	VC	VC	C	C	C	C	M	M	M	M	M
TT11004	XC	VC	VC	C	C	C	C	C	M	M	M
TT11005	XC	VC	VC	VC	VC	C	C	C	C	M	M
TT11006	XC	XC	VC	VC	VC	C	C	C	C	C	M
TT11008	XC	XC	VC	VC	VC	VC	C	C	C	C	M


XR TeeJet® (XR) and XRC TeeJet® (XRC)

	PSI						
	15	20	25	30	40	50	60
XR8001	M	F	F	F	F	F	F
XR80015	M	M	M	F	F	F	F
XR8002	M	M	M	M	F	F	F
XR8003	M	M	M	M	M	M	F
XR8004	C	C	M	M	M	M	M
XR8005	C	C	C	C	M	M	M
XR8006	C	C	C	C	C	C	C
XR8008	VC	VC	VC	C	C	C	C
XR11001	F	F	F	F	F	VF	VF
XR110015	F	F	F	F	F	F	F
XR11002	M	F	F	F	F	F	F
XR11003	M	M	M	F	F	F	F
XR11004	M	M	M	M	M	F	F
XR11005	M	M	M	M	M	M	F
XR11006	C	C	M	M	M	M	M
XR11008	C	C	C	C	C	M	M

TwinJet®

	PSI				
	30	35	40	50	60
TJ60-11002	F	F	F	F	F
TJ60-11003	F	F	F	F	F
TJ60-11004	M	F	F	F	F
TJ60-11005	M	M	M	M	M
TJ60-11008	C	M	M	M	M
TJ60-11010	C	C	C	M	M

DG TwinJet®

	PSI				
	30	35	40	50	60
DGTJ60-110015	F	F	F	F	F
DGTJ60-11002	M	M	M	F	F
DGTJ60-11003	C	M	M	M	M
DGTJ60-11004	C	C	C	C	M
DGTJ60-11006	C	C	C	C	C
DGTJ60-11008	C	C	C	C	C

Droplet size classifications are based on BCPC specifications and in accordance with ASAE Standard S-572 at the date of printing. Classifications are subject to change.

VF	F	M	C	VC	XC
Very Fine	Fine	Medium	Coarse	Very Coarse	Extremely Coarse



Personal Protective Equipment (PPE)

❖ Minimum:

- ❖ Long-sleeved shirt
- ❖ Long trousers or coveralls
- ❖ Gloves
- ❖ Shoes plus socks
- ❖ Hat

Protect Yourself!



Chemical Cartridge Respirators



- Approved NIOSH respirator
- Certification markings on cartridges
- 2 strong adjustable straps
- Filters down to 0.3 microns
- Negative pressure

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Gempler's® Nitrile Gloves, 8-mil, 50/box



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Tye 2007 No Till 7.5ft drill with native grass seed attachment. Grain and Clover seed boxes \$11,500.00



Gill Super Turf Renovator, model STR48-2, mint condition! \$2,500.00

Implements



3 bottom plow
\$350.00



6ft pasture pleaser
\$500.00



Vermeer Haybuster,
\$4,500.00



Ford 6ft disc, used.
\$600.00



Land Pride 72" No Till Overseeder, excellent condition! \$3,500.00



2 bottom plow
\$350.00



IHC wheel drive manure spreader.
\$750.00



Walton 3 point spin spreader.
900lb capacity. \$375.00



Harley S4C Power Box Rake 48"
\$2,500.00



John Deere harrows,
6ft \$95.00



7ft grader blade
\$425.00



Rhino 6ft Box blade.
\$425.00 ~~\$400.00~~



Kongskilde cultivator/harrow
\$650.00



Kelly-Ryan PTO driven manure spreader. \$850.00



Arena Rover 82"
3- point harrow
\$1,200.00

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 Horses & Mules - 51 listings
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 Pets - 35 listings
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Chart 2. Number and rate of fatal occupational injuries, by industry sector, 2010*

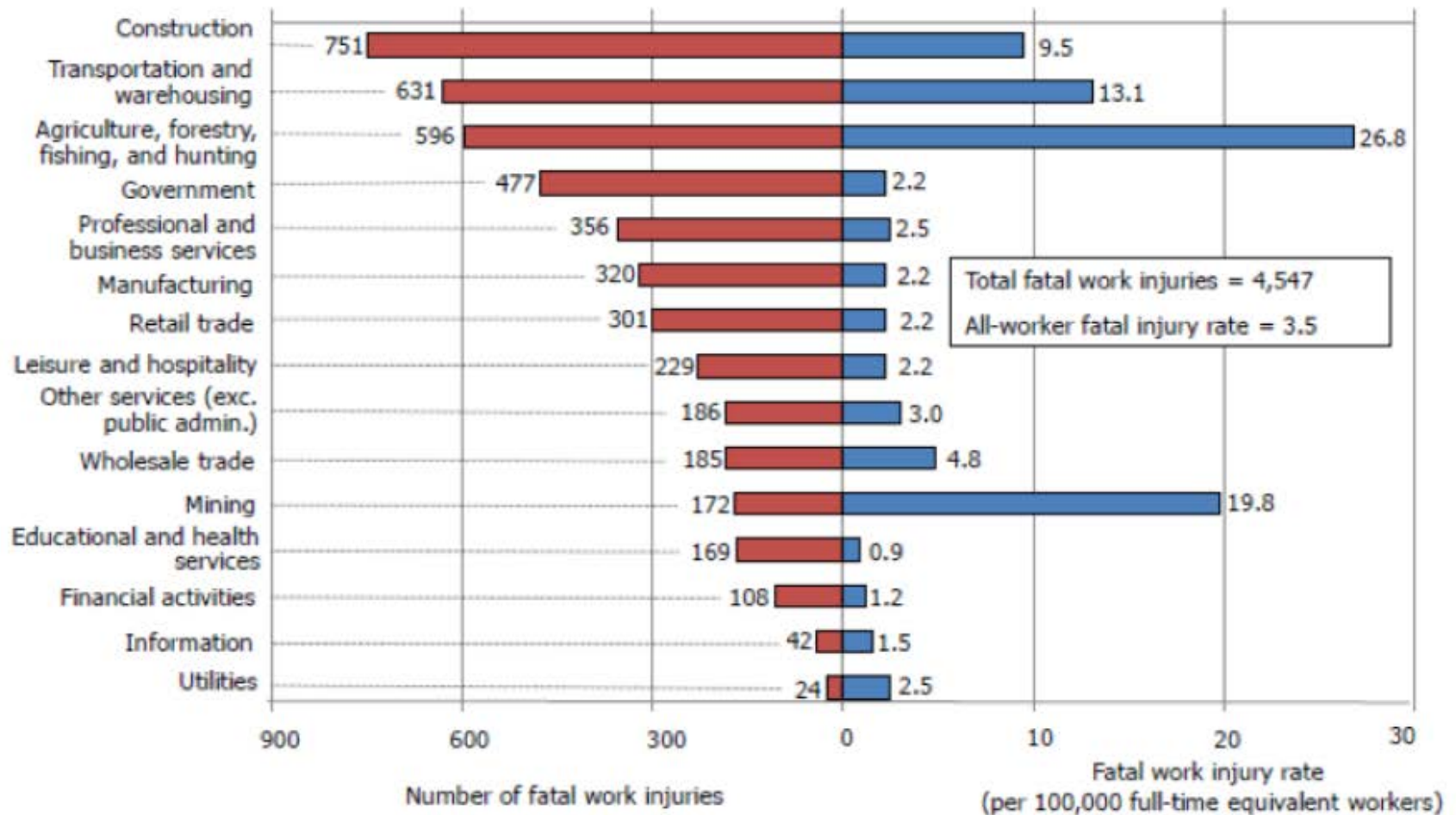
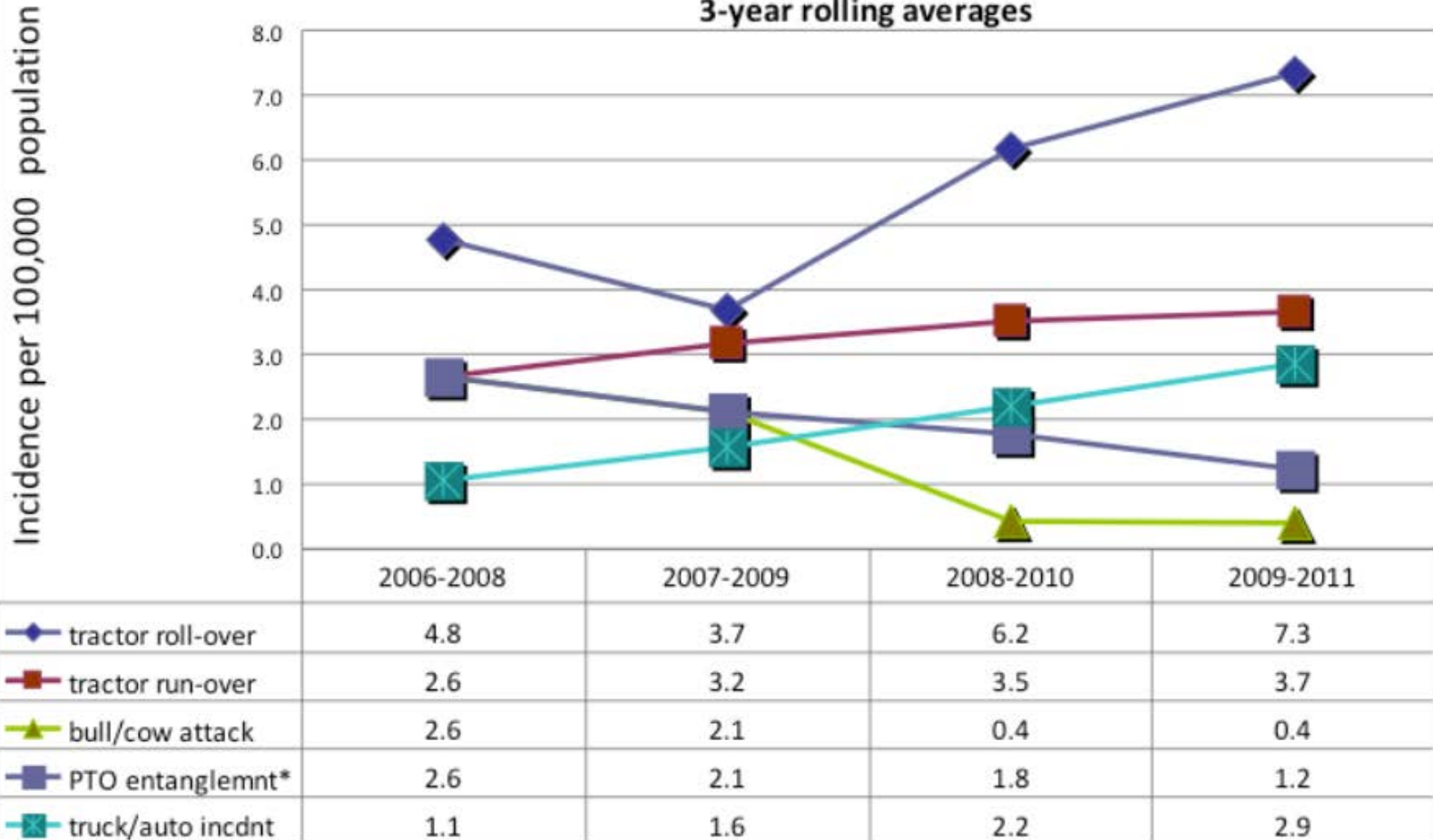


Chart source:

<http://www.bls.gov/news.release/pdf/cfoi.pdf>

Agricultural Fatality Incidence Time Trends by source and type, NY State, 2006-2011

3-year rolling averages



Estimated distribution of agricultural injury sources, New York State, 2007 based on a 10-county sample*


INJURY SOURCE	FREQUENCY	%
Horse	732	30.3%
Tractor	443	18.3%
Trees/crops	255	10.6%
Livestock (cow/goat/bull)	238	9.8%
Non-powered cart, wagon	85	3.5%
Building/structure/surface	85	3.5%
ATV/MUV	85	3.5%
Truck/auto	68	2.8%
Farmstead machinery	34	1.4%
Hand tool	34	1.4%
Other (all other low frequency sources combined)	255	10.6%
Unknown	102	4.2%
Totals	2,417	100.0%

Major Contributing Factors to Tractor and Machinery-related Injury

COMMON VICTIM CHARACTERISTICS	INJURY SOURCES AND THEIR CHARACTERISTICS	WORK ENVIRONMENT CHARACTERISTICS
Lack of knowledge of how to operate tractor do the job	Tractor does not have roll-bar (Roll Over Protection Structure), cab, or seatbelt	Extra-riders are allowed on tractor
Fatigue		Operator is permitted to start tractor from the ground
Not accustomed to climatic conditions	Machinery that does not have the usual safety guards (PTO shaft shields, other shields)	Workers are allowed to (or expected to), use machinery without safety guards or training
Improper footwear		Situation causes operator to feel the need to hurry
Mental health / substance abuse	Machinery that is broken or being used in a way that it was not intended	Terrain is difficult for operation, trees provide little clearance
Other underlying health conditions		Workers fear manager or employer mental health / substance abuse
Language barriers		Long work hours with little or no break time





Vineyard Establishment Web Mod.ppt



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David Myers
Extension Educator

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**Any
Questions?**

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