

Pine Release

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Pine Release: Selective control of shrubs and hardwood trees

- *Selective* herbicides, pines are *tolerant*
- *Shift* species composition
- Pine release
- Mid-rotation release
- Pre-harvest site prep
- Timber stand improvement



Photo: Pat Minogue

Pine Release

Selective control of brush in young pines

- 2–5 Year-old pine stands
- *Velpar*[®] *ULW* in Spring
- *Arsenal*[®] *AC* in September



***Pines need full-sunlight.
Respond to herbaceous
weed control too!***

Selective Pine Release Herbicides

Common Name	Trade Name	Manufacturer
2,4-DP	Weedone [®] 2,4DP	Syngenta
Glyphosate	Accord [®] Conc.	Dow AgroSciences
Imazapyr	Arsenal [®] AC	BASF
Hexazinone	Velpar [®] L	DuPont
Hexazinone	Velpar [®] DF	DuPont
Hexazinone	Velpar [®] ULW	DuPont
Hexazinone	Pronone [®]	Proserve

New Pine Release Products

- **DuPont Lineage™ Clearstand**
 - 63.2 Imazapyr
 - 9.5% Metsulfuron methyl

Also labeled for site prep, herbaceous weed control, individual stem treatments

Pine Release – *Velpar*[®] ULW

- *Loblolly, longleaf, slash, shortleaf, Virginia pine*
- **April-May** applications optimum
- Used for oak control on sandy sites, longleaf release
- Poplar, sassafras are tolerant
- Rate of herbicide is **soil dependent**

Lb Velpar [®] ULW/Acre	Soil Texture
1 - 2	Sand, Loamy sand, Sandy loam
2 - 3	Loam, Sandy clay loam, Silt loam
3 - 4	Clay loam, Sandy clay, Silty clay loam, Silty clay, Clay

Pine Release – *Arsenal*[®] AC

- *Loblolly pine* 12-20 oz/A
 - *Virginia pine* 12-20
 - *Shortleaf pine* 12-16
 - *Slash pine* 12-16
 - *Longleaf pine* 12-16
- Mid-August to mid-October best timing
 - Slash and longleaf pine ages 2-5 only, no surfactant
 - Very broad spectrum hardwood control
 - Elm, redbud, locust, blackberry not controlled



Jim Miller

UGA0016311



Release Herbicides – *Directed Spray*

Common Name	Trade Name	Manufacturer
2,4-D	Weedar [®] 64	Syngenta
Dicamba	Vanquish [®]	Syngenta
Glufosinate	Derringer [®]	Bayer
Triclopyr	Garlon [®] 4 or 3A Garlon [®] 4 Ultra	Dow AgroSciences

Pine Release Tank Mixes:

- 8-16 oz *Arsenal*[®] AC Plus:
 - 0.5-1.0 oz *Escort*[®] XP[®] to improve control of blackberry, mimosa, locust, will control legumes
 - 1-2 qts *Accord*[®] Concentrate to improve control of locust, redbud, elm or to reduce treatment costs

Mid-Rotation Release – Aerial, Selective

Favors pine diameter growth

- **10-20 Year old stands**
- Selective control of hardwoods in older pine stands
- Good return on investment in many situations
- **Spring:**
Velpar[®] ULW
- **Late summer, fall:**
Arsenal[®] AC



Re-allocate available resources

Understory shrub and brush control – Flatwoods sites

- Broadcast treatments made *below the pine canopy* of older stands
- 2-4 qts Garlon[®] 4 Ultra
- 2-4 qts Garlon[®] 4 Ultra plus 16 oz Arsenal AC OR 32 oz Chopper Gen 2 for control of fetterbush, staggerbush, titi, maple



Ground Sprayer Design

Boom-less sprayers

- Cluster nozzles
- Boom-Busters
- Flooding fan nozzles



Ground Sprayer Design

Straight-stream manifold

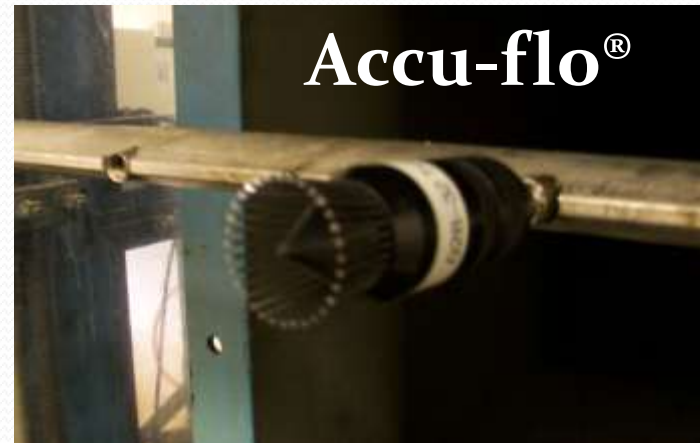
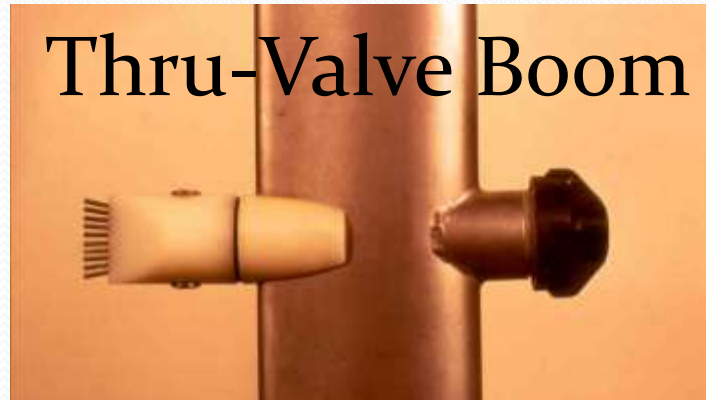
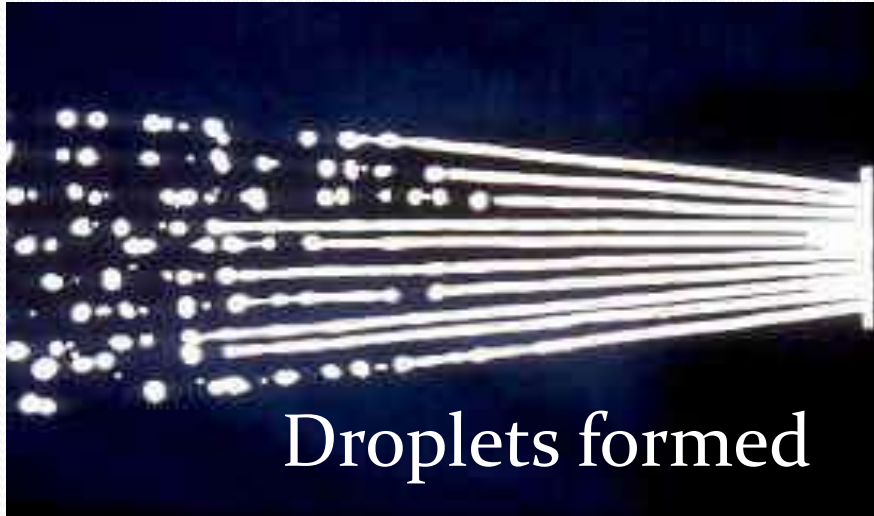


Radiarc[®]
- controlled droplet size



Advances in Aerial Application Technology

Controlled droplet size = reduced drift



Hand Application Techniques

“Do it yourself” approaches

- Backpack foliar sprays
- Hack and squirt
- Cut stump
- Basal stem
- Soil basal spot

Pine straw production



Photo: Pat Minogue

Backpack Foliar Sprays: *Use on low brush*

- Best when brush is waist to shoulder high
- Can target individual stems, select species
- **0.5% Arsenal AC + 2% Accord XRT II**
- **4% Garlon 4 Ultra** on waxy-leaved species



Personal Protective Equipment

Hack & Squirt (Cut Stem)

Efficient herbicide use

- Taller vegetation, greater than 4” diameter
- Generally apply one ml/hack, about the same as 1 pull on a squirt bottle
- *Arsenal*[®] AC (imazapyr)
- *Garlon*[®] 3A (triclopyr)
- *Accord*[®] XRT II (glyphosate)



Cut at a downward angle

Cut Stump

- Best on fresh stumps
- Get all the stumps!
- *Stalker*® 8-16 oz/gal in water, penetrating oil, diesel
- *Garlon*® 4 Ultra 20-30% in oil
- *Garlon* 3A Use undiluted
- *Pathfinder II* Ready to use
- *Accord*® XRT II 40-100% in water



Spray just the cambium

Basal Stem Treatment

Effective in winter months

- Spray bark of small diameter stems, less than 6 inches
- Apply from ground to **12-15 inches** high on stem
- Use with “basal oil” or oil emulsion carrier
- **Garlon[®] 4 Ultra** (*triclopyr*) at 20-30% in oil
 - Best on thin-barked species
 - Concerns with **volatility**
- **Stalker[®]** (*imazapyr*)
 - Very broad spectrum
 - Concerns with **soil activity**



Soil Basal Treatments

Spring applications



- Undiluted *Velpar*[®] L
- Exact delivery handgun applicator to the base of woody vegetation
- For *trees* use 2-4 ml product per inch of stem diameter at breast height
- For **brush** apply 2-4 ml product per 3 feet canopy width

Sources of Additional Information

- **Southern Regional Extension Forestry:**
<http://www.sref.info/>



- **Integrated Forest Vegetation Management Website**
<http://ifvm.ufl.edu/>

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