



Early Release and Mid-Rotation Release in Southern Forests

Jim Bean

Strategic Accounts Manager

Professional Vegetation Management

BASF Corporation



We create chemistry

Agenda

- Early Release
- Mid-Rotation Release
- Products
- Recommendations
- Wildlife Benefits

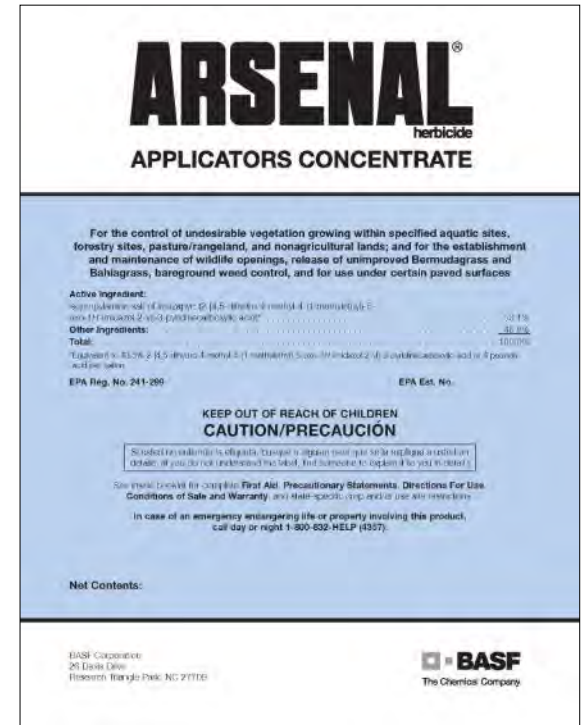
What is Early Release?

- Normally applied when no chemical site prep was utilized
- Target: Woody brush
- Timing: 2 to 7 years after planting
- Goal: Allow seedlings to be free to grow



BASF Solution

- Common Name: Arsenal AC
- Active Ingredient: Imazapyr 4 lbs. per gal.
- Group 2 herbicide
- Signal Word: Caution
- Mode of Action: ALS Inhibitor
- Strengths: Most hardwoods
- Weaknesses: Conifers and legumes
- Notes: The leading pine release product



Arsenal AC Review

- Very versatile product
 - ▶ Pre-plant or Over the Top
 - ▶ Summer to Fall
 - ▶ Early release and mid-rotation release
- Provides effective, broad spectrum, long-term grass, broadleaf weed and hardwood control
- 16 oz. to 20 oz. Arsenal AC + 1 oz. Escort XP is the industry standard for early release (provides rubus control)
- Use 16 to 24 oz. Arsenal AC for mid-rotation release

Early Release



ARSENAL
herbicide
APPLICATORS CONCENTRATE

BASF
We create chemistry

Early Release – 1 YAT



ARSENAL
herbicide
APPLICATORS CONCENTRATE

16 oz. Arsenal AC
Aerial Application

BASF
We create chemistry

Early Release – 5 YAT



ARSENAL
herbicide
APPLICATORS CONCENTRATE

16 oz. Arsenal AC
Aerial Application

BASF
We create chemistry

Early Release – 1 YAT



ARSENAL
herbicide
APPLICATORS CONCENTRATE

16 oz. Arsenal AC
Aerial Application

BASF
We create chemistry

Early Release – 5 YAT



ARSENAL
herbicide
APPLICATORS CONCENTRATE

16 oz. Arsenal AC
Aerial Application

BASF
We create chemistry

Early Release – 1 YAT



ARSENAL
herbicide
APPLICATORS CONCENTRATE

16 oz. Arsenal AC
Aerial Application

BASF
We create chemistry

Early Release – 5 YAT

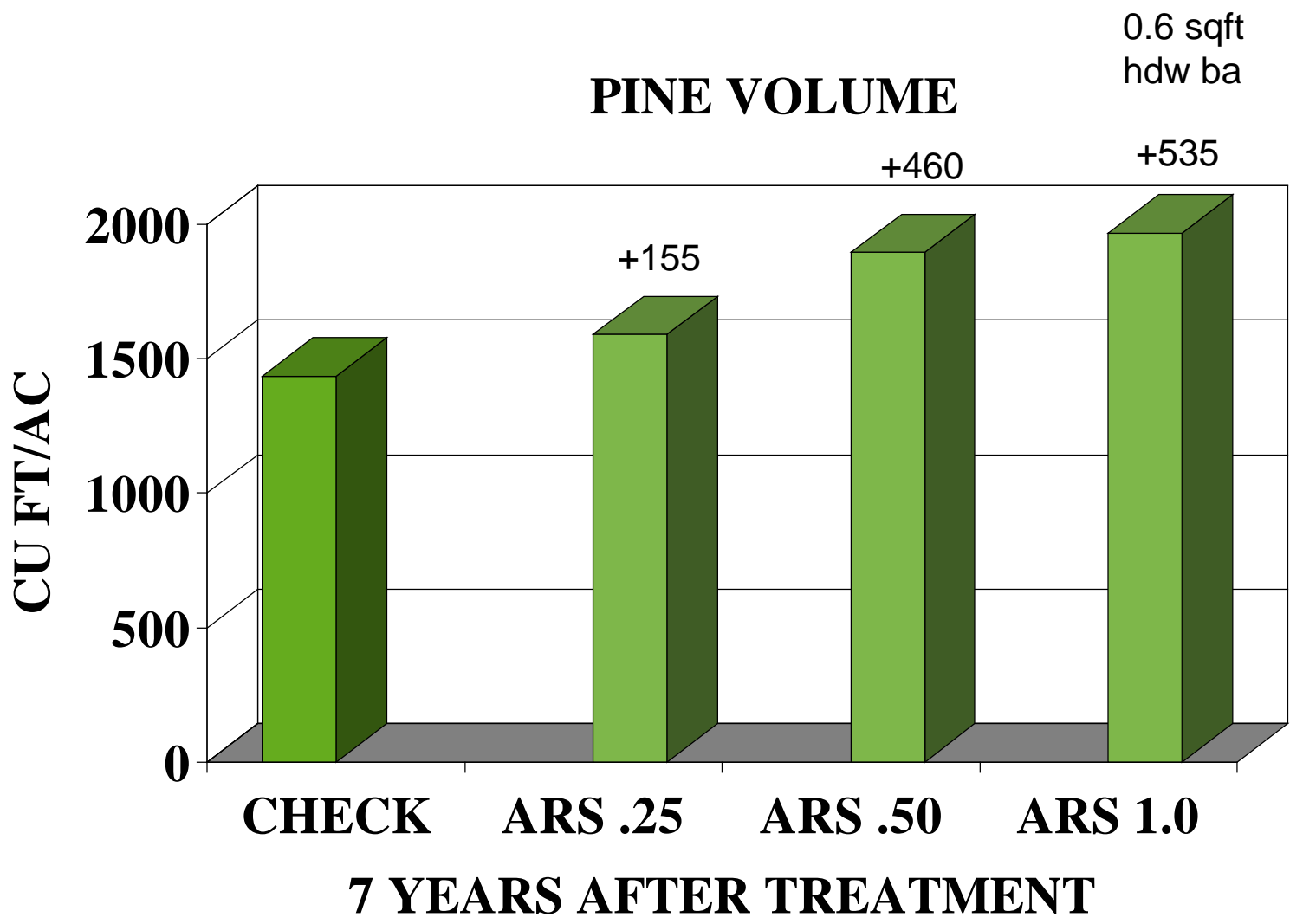


ARSENAL
herbicide
APPLICATORS CONCENTRATE

16 oz. Arsenal AC
Aerial Application

BASF
We create chemistry

PINE RELEASE - RATE & TIMING STUDY



Source: Auburn University Silvicultural Herbicide Coop 7 yr results



Early Release Recommendations

Loblolly Pine

Over the Top: Aerial*

- 12 oz. to 20 oz. Arsenal AC + .25% NIS
- 12 oz. to 20 oz. Arsenal AC + 1 oz. Escort XP + .25% NIS

Note: Use higher rates in the deep south

Early Release Release Recommendations Slash and Longleaf Pine

Over the Top : Aerial

- 12 oz. to 16 oz. Arsenal AC
 - ▶ Treatments must be made after August 15th
 - ▶ DO NOT add surfactant
 - ▶ Use lower label rates on sandy soil

Note: Only use Arsenal AC for over the top applications of Slash and Longleaf pine 2 through 5 years after planting

What is Mid-rotation Release?

- Normally applied one year post commercial thinning after hardwoods resprout
- Target: Woody brush
- Timing: 10 to 15 years after planting
- Goal: Enhance diameter growth by controlling competition for light, water and nutrients

Hardwood Competition After Thinning



Mid-Rotation Release

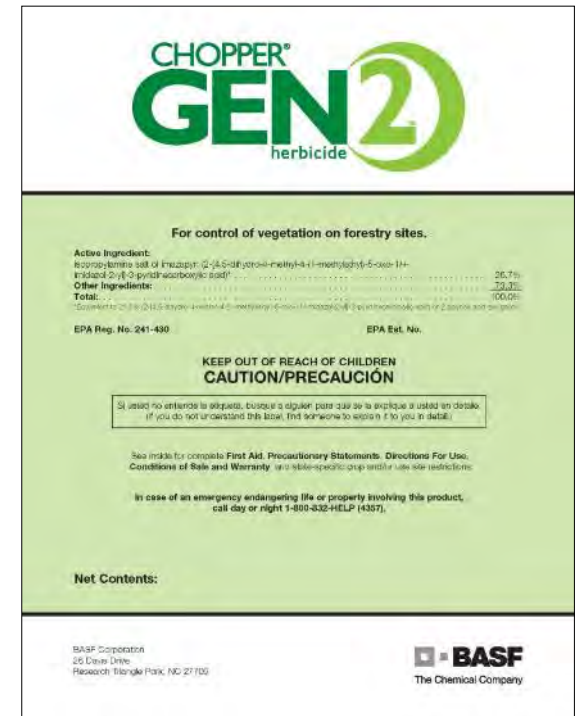


CHOPPER[®]
GEN2
herbicide

BASF
We create chemistry

BASF Solution

- Common Name: Chopper GEN2
- Active Ingredient: Imazapyr 2 lbs. per gal.
- Group 2 herbicide
- Signal Word: Caution
- Mode of Action: ALS Inhibitor
- Strengths: Most hardwoods
- Weaknesses: Conifers and legumes
- Enhanced formulation with ***Transport Technology*** improves absorption of the active ingredient.



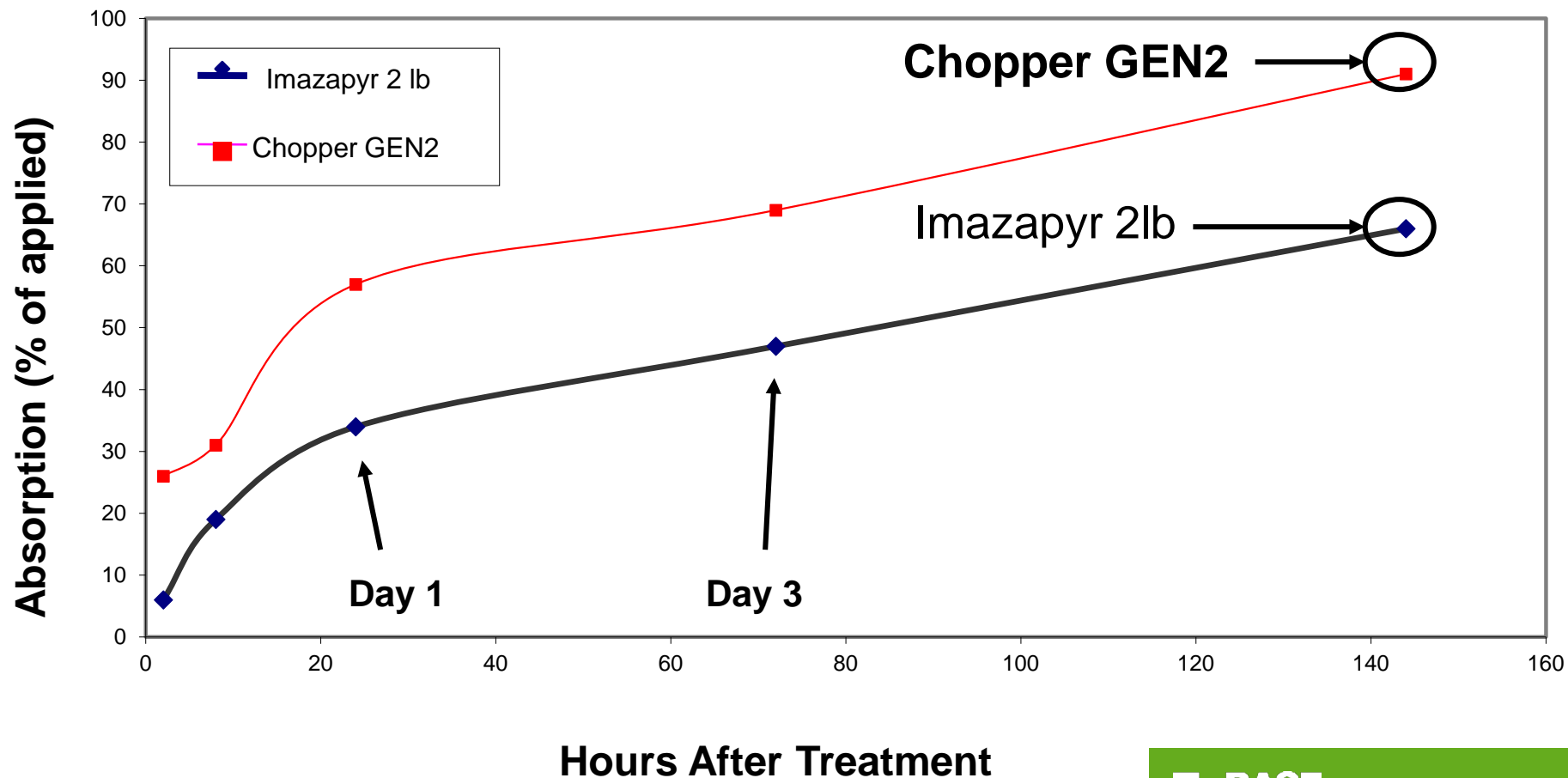
Chopper GEN2 Review

- Very versatile product
 - ▶ Understory Applications – Not for over the top treatments
 - ▶ Mixes with oil for enhanced waxy species control
 - ▶ Early summer to fall
- Provides effective, broad spectrum, long-term grass, broadleaf weed and hardwood control
- 32 oz. to 48 oz. Chopper GEN2 is the industry standard for mid-rotation release



Chopper GEN2 Review

Red Oak- Impact of Transport Technology



Mid-Rotation Release – 1 YAT



Mid-Rotation Release 3 YAT



32 oz. Chopper GEN2
July

BASF
We create chemistry

The Desired Result



BASF Solution

- Common Name: Detail
- Active Ingredient: Saflufenacil
- Group 14 herbicide
- Signal Word: Caution
- Mode of Action: PPO Inhibitor
- Strengths: Conifers
- Weaknesses: Hardwoods
- Notes: Coverage is critical. Great addition for wildling pine.



Detail Review

- Enhances wilding pine control with Accord XRTII or FinaleVU
 - ▶ Understory Applications – Not for crop tree over the top treatments
 - ▶ Enhances waxy species control of yaupon and galberry
 - ▶ Early summer to fall
- Also provides effective, broad spectrum, control of difficult broadleaf weeds such as marestalk and pigweed
- 2 oz. is the standard Detail rate



Tips For Success

- MUST add MSO 1% for control
- Coverage is critical
- pH must be between 6.0 – 7.5
 - ▶ Add water conditioner
- Maximum 6 oz. per year

Mid-Rotation Release 2 YAT

Yaupon Control



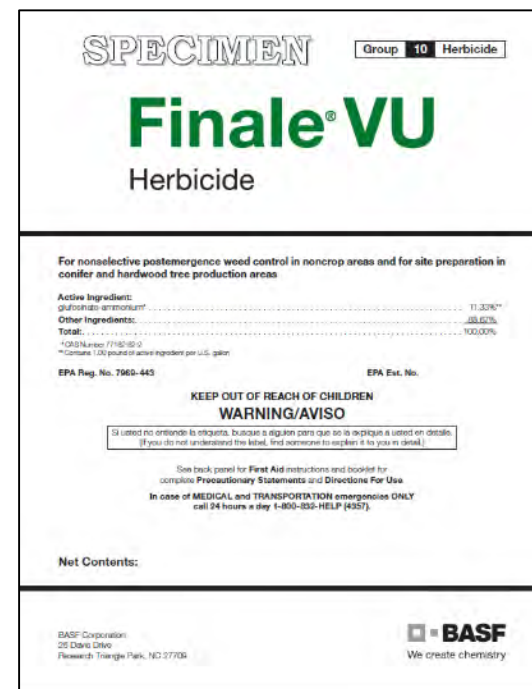
2 oz. Detail + 48 oz. Chopper GEN2 + 24 oz. Garlon XRT
Ground Broadcast



Check

BASF Solution

- Common name: Finale VU
- Active ingredient: Glufosinate
- Group 10 herbicide
- Signal Word: Warning (temporary eye irritation)
- Mode of Action: Glutamine Synthetase Inhibitor
- Strengths: Conifer control, especially pines
- Weaknesses: Lack of translocation
- Notes: Coverage is critical



Finale VU
Herbicide

BASF
We create chemistry

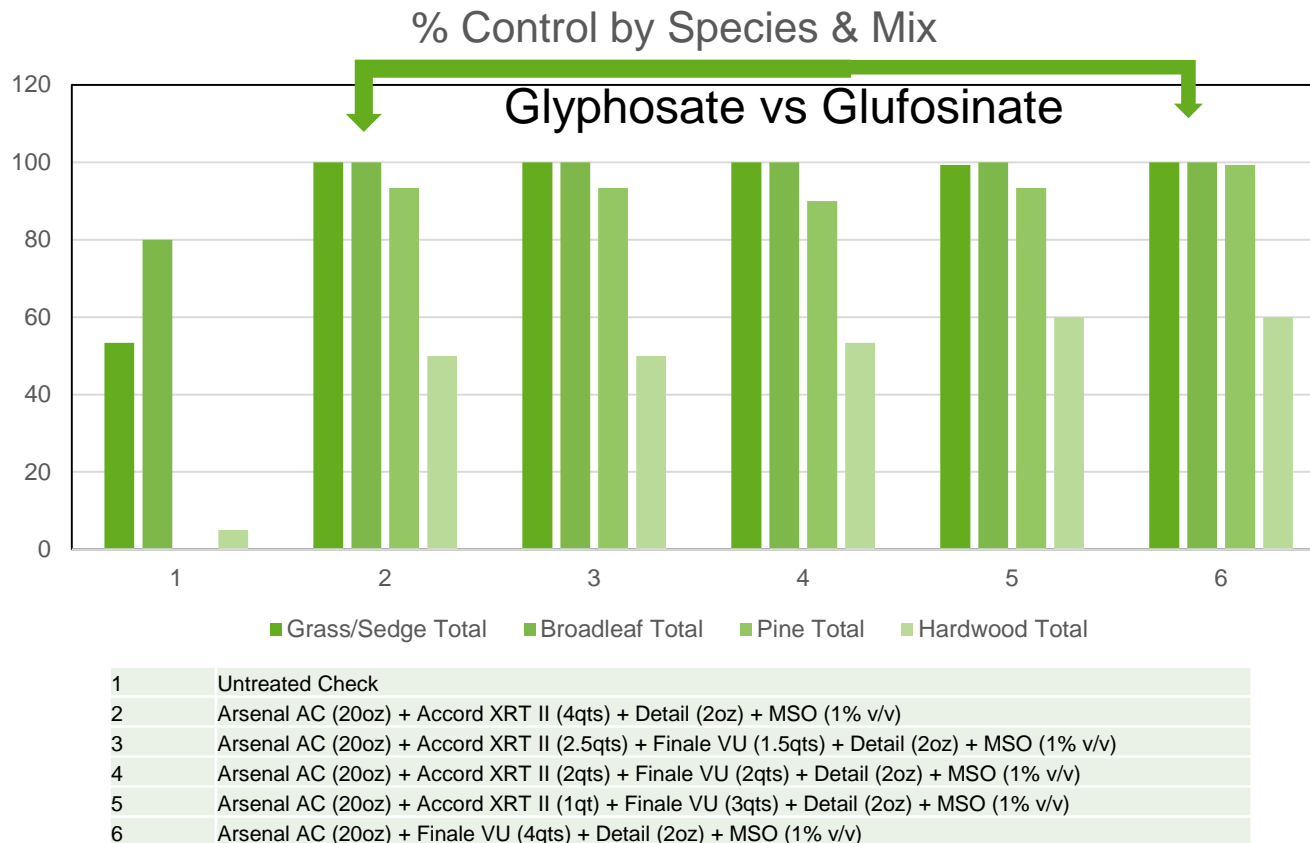
Finale VU Review

- Controls wilding pine
 - ▶ Understory Applications – Not for crop tree over the top treatments
 - ▶ Early summer to fall
- Also provides effective, broad spectrum, control of difficult broadleaf weeds and waxy shrubs such as marestail, pigweed and yaupon
- 4 qts. is the standard Finale VU rate

Tips for Success

- Rainfast in as little as 30 minutes but may take up to 4 hours depending on weed and environmental conditions
- Tank mixes with most products
- One lb of active ingredient per gallon – 11.33%
- Adjuvant recommended 1% MSO
 - ▶ A non-ionic defoamer may be required in soft water conditions
 - ▶ AMS can improve performance, especially with hard water and in drought stressed plants
 - 8.5 to 17 lbs of spray grade ammonium sulfate/100 gal (1 to 2% by weight) or 2 to 4 pounds per acre

Andy Ezell 2019 Fall Site Prep Trial Starkville, MS – 30 DAT



Applied October 8, 2019

Finale VU Wildling Pine Control



Finale VU 4 qt + Chopper Gen2 48 oz - 1 MAT

Creating Wildlife Friendly Habitat

MS State mid-rotation release trials with Arsenal AC

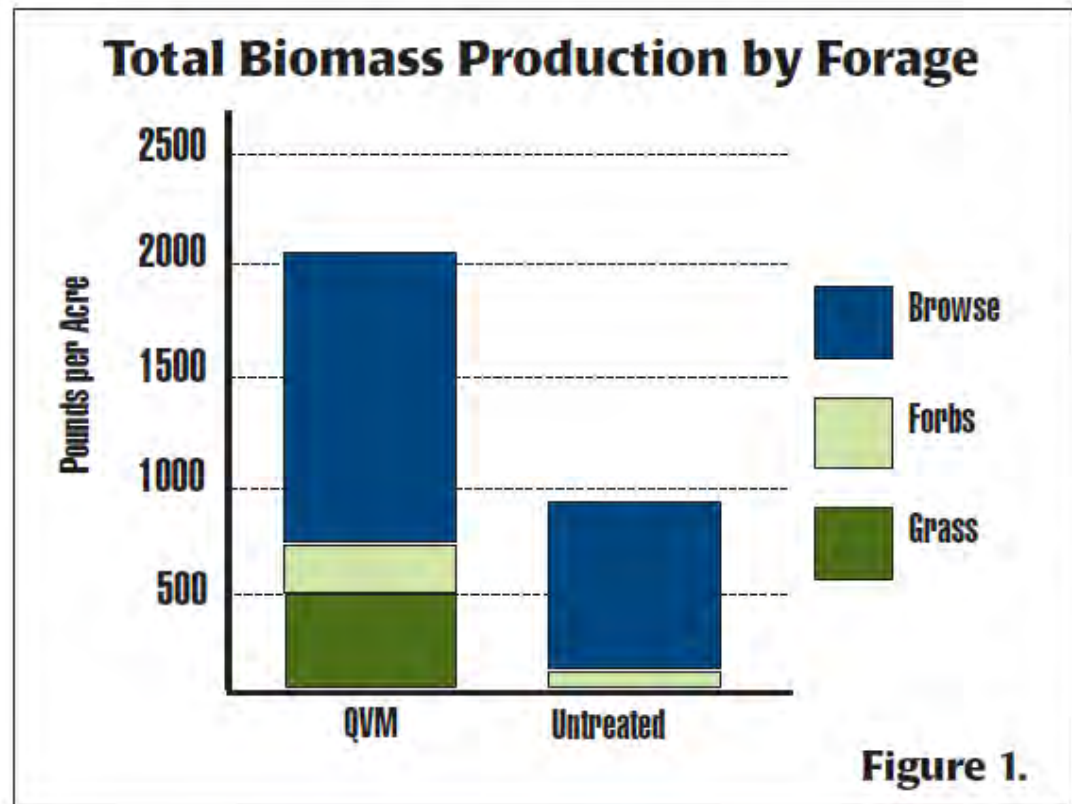
- Released forbs (flowering plants)
 - Increase in pollinators
- Released legumes
 - Nitrogen fixers
- Increased high quality food
 - Beautyberry
 - Rubus
- Provided Cover
 - Release warm season grasses
 - Cover for Turkey, quail and pheasant



Creating Wildlife Friendly Habitat

MS State mid-rotation release trials with Arsenal AC

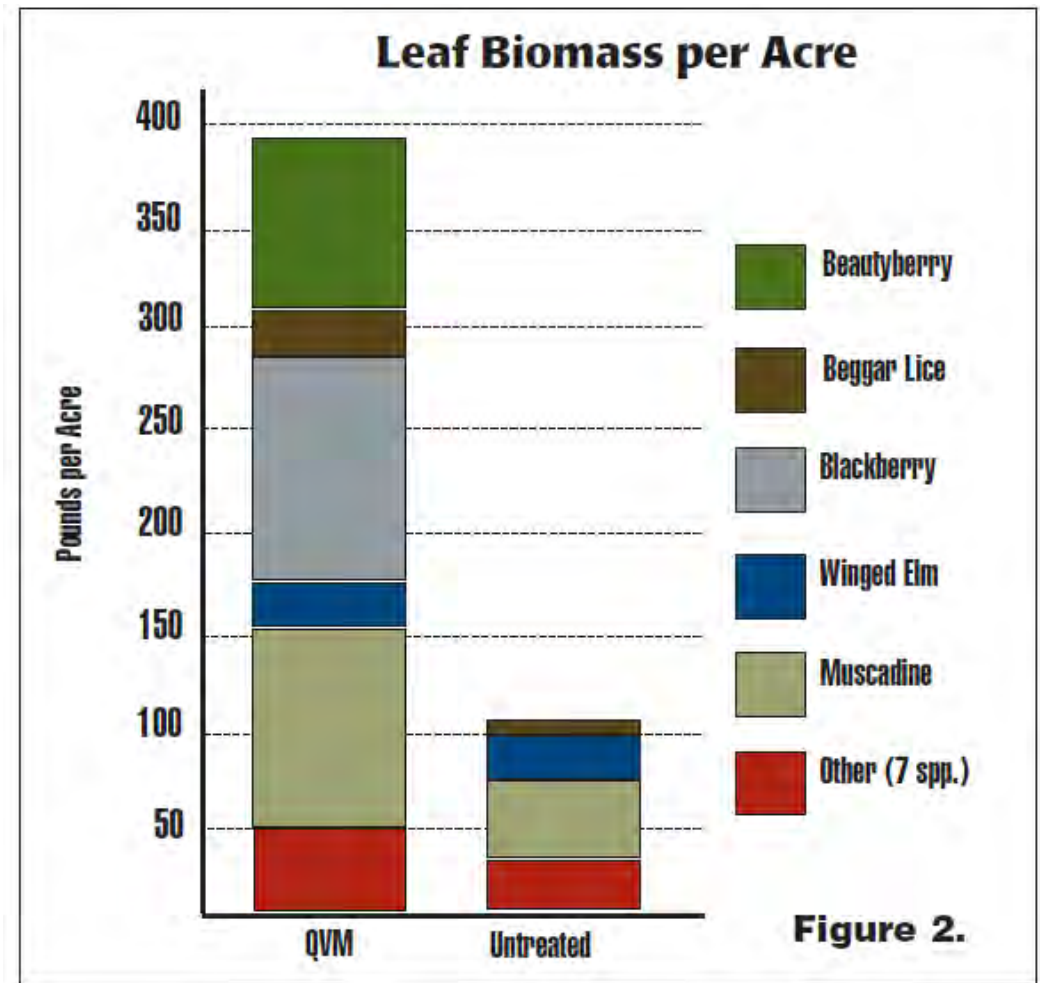
- Biomass doubled
 - More forbs and grasses
- Deer Browse Changed
 - From
 - Sweetgum
 - To
 - Beautyberry
 - Blackberry
 - Muscadine
 - Sparklelberry
 - Winged elm



Creating Wildlife Friendly Habitat

MS State mid-rotation release trials with Arsenal AC

- Leaf biomass
 - 350% increase
- Digestible protein
 - 500 % increase
- Plant diversity
 - Arsenal AC
 - 99 species
 - Untreated
 - 38 species
- High quality diet



Wildlife Friendly Habitat

Increases Wildlife



Mid-rotation Release

Benefits

- Provides quality habitat
 - Deer
 - Turkey
 - Many songbirds
 - Pollinators
- Improves financial returns from timber growth
- Improves aesthetics
- Increases carbon sequestration

Mid-Rotation Release Recommendations

Loblolly Pine

Over the Top : Aerial

- 12 oz. to 20 oz. Arsenal AC + .25% NIS
 - ▶ Best for release of wildlife friendly species
- 12 oz. to 20 oz. + 1 oz. Escort XP + .25% NIS

Note: DO NOT use Arsenal AC for over the top applications of Slash and Longleaf pine after age 5 of the pines

Mid-Rotation Release Recommendations

Loblolly Pine

Understory: Ground

■ Hardwood Only

- ▶ 16 oz. to 32 oz. Arsenal AC + .25% NIS
 - Best for release of wildlife friendly species
- ▶ 16 oz. to 32 oz. Arsenal AC + 1 oz. Escort XP

■ Wildling Pine and Waxy Species

- ▶ 24 oz. to 64 oz. Chopper GEN2 + 4 qts. Accord XRTII + 2 oz. Detail + 1 oz. Escort XP + 1% MSO
 - Substitute 4 qts. Finale VU as a glyphosate substitute

Mid-Rotation Release Recommendations

Slash and Longleaf Pine

Understory: Ground

■ Hardwood Only

- ▶ 12 oz. to 16 oz. Arsenal AC + .25% NIS
 - Best for release of wildlife friendly species
- ▶ 12 oz. to 16 oz. Arsenal AC + 1 oz. Escort XP + .25% NIS

■ Wildling Pine and Waxy Species

- ▶ 24 oz. to 32 oz. Chopper GEN2 + 4 qts. Accord XRTII + 2 oz. Detail + 1 oz. Escort XP + 1% MSO
 - Substitute 4 qts. Finale VU as a glyphosate substitute

Mid-Rotation Release

Conclusion

- There is a strong financial return (7% – 15%) for mid-rotation release treatments for Chip and Saw and Sawtimber in most situations!
- View the upcoming webinar on our Mid-rotation Release Financial Return Model for more details

Summary

- Arsenal AC is the most versatile product
- Chopper GEN2 gets more imazapyr into the plant and is the best product for early summer and late fall applications and for waxy species control when mixed with oil
- Detail enhances wildling pine and waxy species control
- Finale VU is a glyphosate alternative for wildling pine control and waxy species control
- Early release can save a stand from hardwood competition
- Mid-rotation release provides beneficial return on investment

BASF ProVM Podcasts

- 5 - 7 Minute Podcasts
 - Posted on the ProVM website
 - Timely subjects

www.bettervm.basf.us



BASF ProVM Webinars

- 15 – 30 Minutes
 - Slides and Audio
 - Posted on the ProVM website
 - Timely subjects

www.bettervm.basf.us



Questions?

Jim Bean

901-496-2443

james.bean@basf.com

Greg Armel

919-491-9655

gregory.armel@basf.com

**Visit our website at www.bettervm.basf.us for
additional product information!**

Thank You!