



INTRODUCING **TREE-äge**®

RESTRICTED USE PESTICIDE
DUE TO ACUTE TOXICITY TO HUMANS
FOR RETAIL SALE TO AND USE ONLY BY CERTIFIED APPLICATORS
OR PERSONS UNDER THEIR DIRECT SUPERVISION, AND ONLY
FOR THOSE USES COVERED BY THE CERTIFIED APPLICATOR'S
CERTIFICATION.

**Injected insecticide for two year control of listed arthropod pests
in ash trees (*Fraxinus* spp.)**

Active Ingredients:
Emamectin Benzoate¹ 4.0%
Other Ingredients 96.0%
Total 100.0%
CAS No. 155569-91-8
Contains 0.36 lbs. emamectin per gallon.

EPA Reg. No. 100-1309-74578 EPA Est. 39578-TX-1

KEEP OUT OF REACH OF CHILDREN.
WARNING/AVISO

PRECAUTIONARY STATEMENTS:
HAZARD TO HUMANS AND DOMESTIC ANIMALS

WARNING/AVISO: Causes substantial but temporary eye injury. Do not get in
eyes or on clothing. Wear protective eyewear. Harmful if swallowed. Wash
thoroughly with soap and water after handling and before eating, drinking,
chewing gum, using tobacco or using the toilet. Remove and wash contaminated
clothing before reuse.

*Si usted no entiende los riesgos busque a alguien para que se lo explique a usted en
detalle. (If you do not understand the label, find someone to explain it to you in detail.)*
See additional Precautionary Statements in booklet. See Directions for Use in
booklet.

Manufactured For: Arborjet, Inc.
19 Bluestem 188 Road, Woburn, MA 01801
SCPL ABJ 1309A-L2 1109 307733
Net Contents: 1 Quart, 2 Fluid Ounces (1 Liter)



TREE-äge® insecticide is a Restricted Use Pesticide and may only be sold to and used by a state certified applicator or by persons under their direct supervision. TREE-äge® is a registered trademark of Arborjet, Inc.



Arborjet Plant Health Solutions



INSECT CONTROL

IMA-jet • ACE-jet • TREE-äge®



DISEASE CONTROL

PHOSPHO-jet • Alamo®



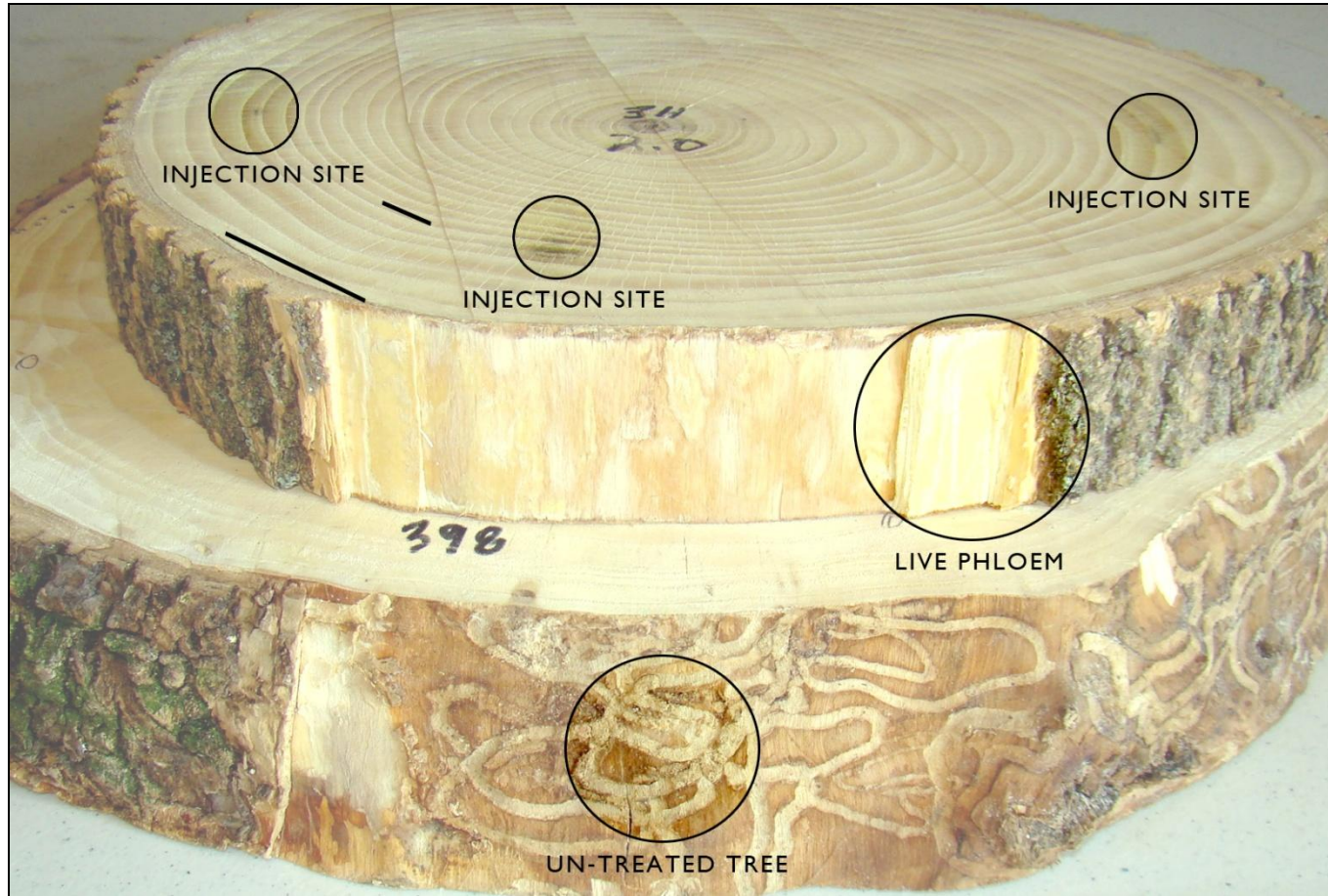
NUTRITIONAL SUPPLEMENTS

MIN-jet Calcium • PALM-jet • ROOT-jet Iron • MIN-jet Iron
MICRO-jet • MIN-jet Manganese

What Is TREE-äge® insecticide?

- “TREE-äge®” is the trade name for the Arborjet Formulation produced from the active ingredient Emamectin Benzoate.
- The active ingredient Emamectin Benzoate is a semi-synthetic second generation avermectin insecticide.
- Mode of Action – Chloride Channel Activator that prevents the insect muscle from contracting. Insect is paralyzed and stops feeding within hours of ingestion.
- Direct injections into the tree’s vascular system using Arborjet technology allows TREE-äge® to begin moving to target immediately.

TREE-äge® Treated Trees Thrive



UN-TREATED TREE VS TREATED TREE

Four Possible Municipal “Strategies”

1) DO NOTHING

- Ash trees may die.
- Eventually EAB population drops as trees disappear.
- Environmental impact could be significant.

2) TREAT WITH “SOMETHING”

- Better than “do nothing”?
- Yearly treatment may just slow rate of death?
- Trees may continue to decline, requiring eventual removal.

3) CUT THEM ALL DOWN

- Spend \$ up front to remove all ash trees - cost very high, race to remove before dying.
- Dead trees can fall and damage property or injure people.

4) TREAT WITH TREE-äge®

- Save desirable trees, plan & budget for needed removals.
- Longest treatment intervals.
- Application is sealed in the tree.

TREE-äge® Estimated Costs for Emerald Ash Borer Treatments

MUNICIPAL TREATMENT MODEL						
Material	Plugs	Labor	OH	Total Cost	Annual Cost	Comments
\$17.08	\$2.08	\$8.33	\$8.33	\$35.82	\$17.91	You still have the tree with all its benefits

MUNICIPAL REMOVAL MODEL		
Cut-Remove-Replace	Annual Service on Debt	Comments
\$1200 - \$1600 (Chicago)	\$60 at 5%	The cost of treatment is 1/3 the cost of the annual debt service on Cut-Chip-Grind.

THE COMPARISON FOR 20,000 TREES		
Annualized Treatment Cost	Annual Debt Service If Cut and Removed	Unpaid Principle If Cut and Removed
\$333,200	\$1,200,000	\$24,000,000

All costs provided are estimates. Prices are subject to change without notice.

TREE-äge® Treatments on Commercial Sites

Quantity Trees	Tree Size (Inches)	Total Inches Treated	Material Cost Per Tree	Total Material Cost	Your Sales \$ @ \$10 per inch	Profit	Time Needed (Minutes)
5	12	60	\$29.45	\$ 147.35	\$ 600.00	\$452.65	50
4	16	64	\$39.25	\$ 156.96	\$ 640.00	\$483.04	40
3	20	60	\$48.85	\$ 158.25	\$ 600.00	\$441.75	30
12	Totals	184	-	\$ 462.56	\$1,840.00	\$1377.44	120

All costs provided are estimates. Prices are subject to change without notice.

TREE-äge® on Emerald Ash Borer Summary

- Emerald Ash Borer **can be controlled**, trees protected and saved.
- Annual treatment is **not required**; the latest research indicates **two years of protection** from a single treatment with Arborjet's TREE-äge® insecticide.
- Retreatment intervals will lengthen as pest pressure drops following initial invasion.
- Treatment should be **less costly than removal**, even in the long run if performed internally, or contracted out.

“Insecticide Options for Protecting Ash Trees from Emerald Ash Borer”

“... **TREE-äge®** is effective for two years... alters the economics of treating ash trees.”

“Intensive studies (showed) 1 application of TREE-äge® (provided) excellent control of EAB for **two years, under high pest pressure.**”

“2 years after treatment with TREE-äge®, virtually NO larvae in treated trees, untreated trees had hundreds of larvae.”

“In a **discouraging** study, ash trees continued decline even when **treated yearly** with Imicide®, Pointer™ or Bidrin®.”

“Canopy dieback increased by 67% **in the yearly treated trees,** indicating that these products may only **slow or delay** ash decline!”

Insecticide Options for Protecting Ash Trees from Emerald Ash Borer. Herms (The Ohio State University), McCullough (Michigan State University), Smitley (Michigan State University), Sadof (Purdue University), Williamson (University of Wisconsin-Madison & University of Wisconsin Cooperative Extension), Nixon (University of Illinois at Urbana-Champaign). 2009

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Troy, Michigan - North Site Arborjet Treatment



Control Tree



TREE-äge® Treated Tree

Ash Trees Can Be Protected by TREE-äge®



UN-TREATED TREE VS. TREE-äge® TREATED TREE 4 YRS POST-TREATMENT

2005 - 2006 Study

TREE-äge® EFFICACY AND DURATION						
Treatment Dates	Study	Gm A.I./ DBH"	Larvae/m2 F 2005	Larvae/m2 F 2006	% Dieback S 2005	% dieback S 2006
S 2005	Therapeutic	0.1	0.0a	0.0a	17.0	16.7
		0.2	0.0a	0.0a	25.0	26.7
		0.4	0.0a	0.0a	31.0	28.2
		0.6	0.0a	0.0a	42.0	34.3
	Controls	0.0	59.2b	X*	19.0	54.0

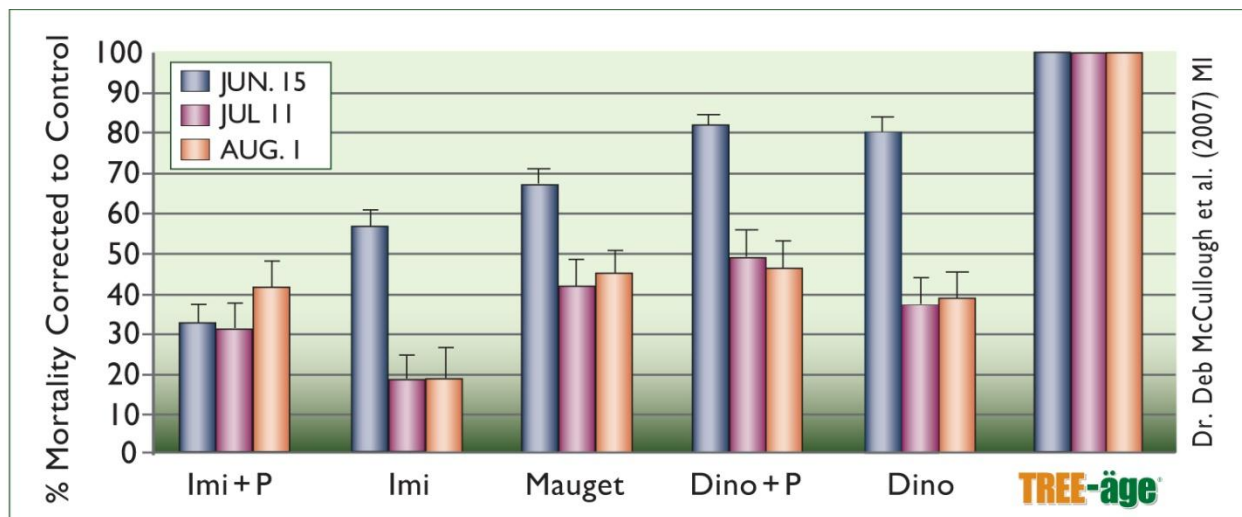
USEP010932005 - Dr. David Smitley, MSU

*controls removed fall '06

Results Show Control for Two Years for all Applied Dosages

TREE-äge®

EAB Control vs. Other Treatments



Imi+P: Imidacloprid + Pentra-Bark®
(sprayed on the bark)

Imi: Imidacloprid (soil application)

Mauget: Mauget's Iicide® (injection caps)

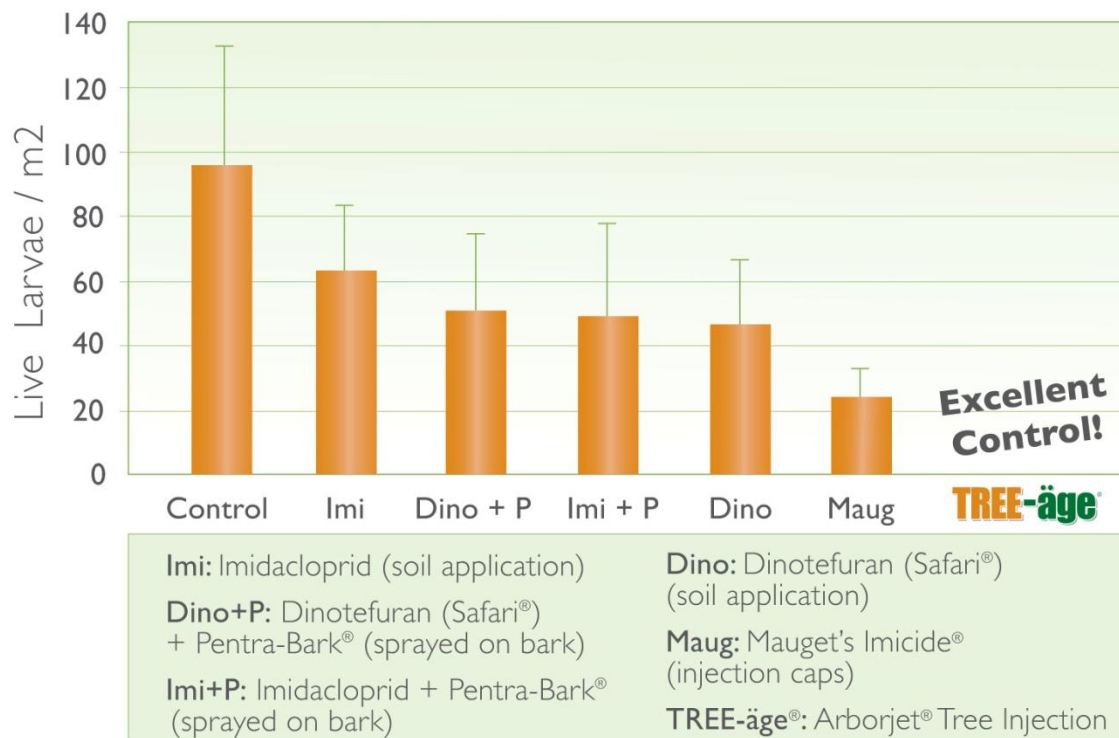
Dino+P: Dinotefuran (Safari®)
+ Pentra-Bark® (sprayed on the bark)

Dino: Dinotefuran (Safari®) (soil application)

TREE-äge: Arborjet® Tree Injection

Published by McCullough, D.G. et al. (2007) in the USDA EAB
Research & Development Review Meeting 2007

Arborjet's TREE-äge® Compared to Other Treatment Methods



“...emamectin benzoate was highly effective; a total of 8 live larvae were found on seven trees, while more than 200 larvae were on the untreated controls...”

Dr. Deb McCullough Nov. 2008

2009 TREE-äge® Test Results

Treatment	Treatment Dates	# trees	2007 Canopy thinning (%)	# trees	2008 Canopy thinning (%)	# trees	2009 Canopy Thinning (%)
TREE-äge® Trunk Injection 0.4 g ai per " DBH	6/2006	10	11.1 ± 6.0 A	10	12.3 ± 10.4 A ¹	8	7.2 ± 6.7 A
TREE-äge® Trunk Injection 0.4 g ai per " DBH	6/2006	10	11.6 ± 6.5 A	9	13.0 ± 12.7 A	8	20.0 ± 8.0 A
Control 1	No Treatment	10	12.0 ± 15.1 A	10	58.3 ± 26.5 B	5	89.5 ± 13.4 B

Dave Smitley MSU Adrian, MI Study

¹ Means followed by the same letter are not significantly different at P = 0.01 level by Tukey's Test.

EAB Study Michigan State U 2009

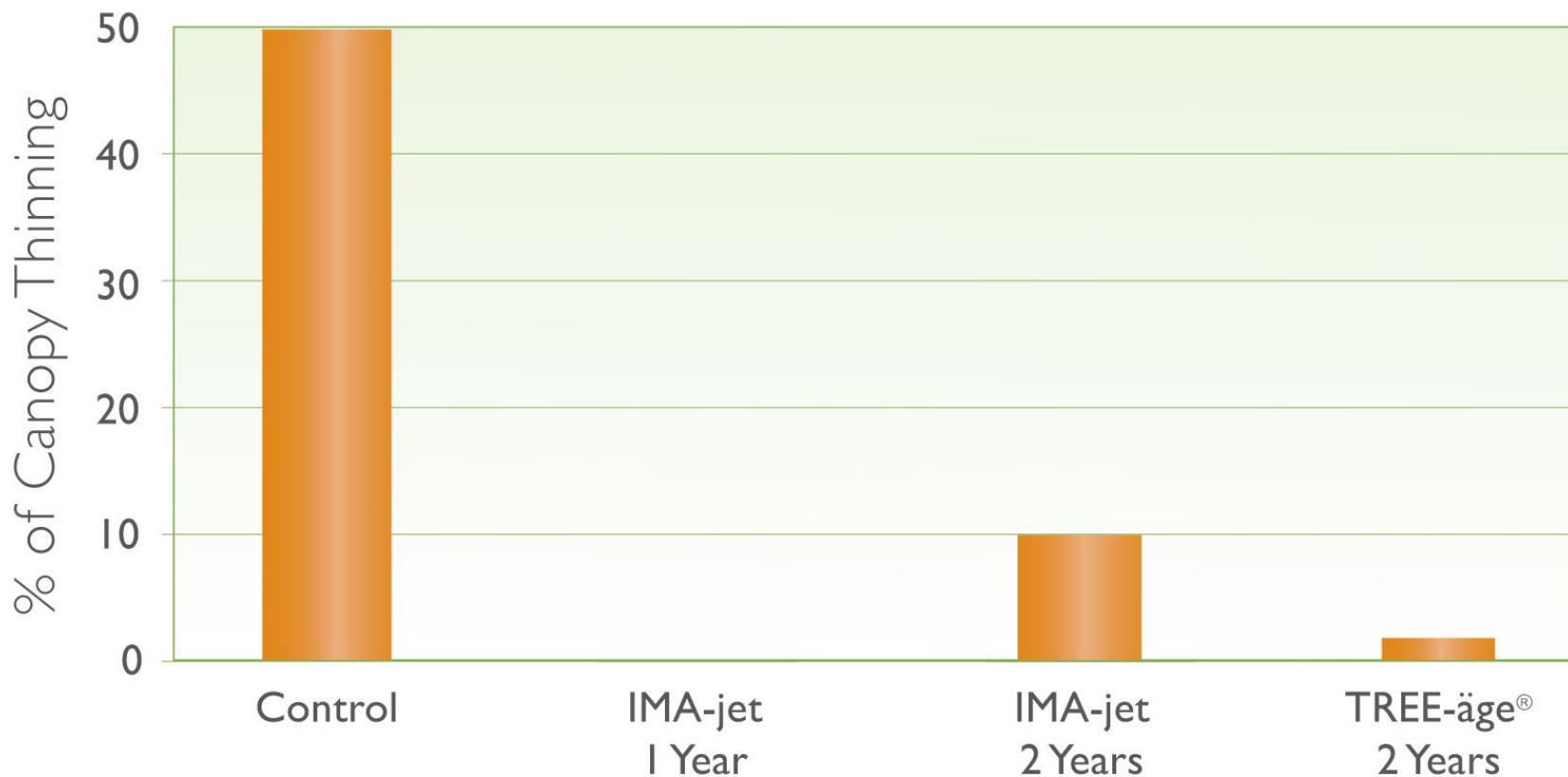
“The nearly complete EAB control by emamectin benzoate, two years post-treatment, was striking. . .”

“. . .dramatically reduces costs and logistical problems associated with annual treatments. . .”

**- Deb McCullough,
Michigan State University 2009**

Ohio State 2008 EAB Control Results

Effects of trunk injections in 2006 and/or 2007 on decline of ash trees in 2008



Daniel A. Herms A. Professor & A. Chairperson Dept. Entomology University Ohio

Ohio State University

Effects of emamectin benzoate & IMA-jet trunk injections on ash tree canopy decline

Treatment	Mean % Canopy Decline			
	2006	2007	2008	2009
Untreated Control	0	6 a	51 a	90 a
Emamectin benzoate 2006	0	0 a	0 b	13 c
Emamectin benzoate, 2006 & 2008	0	0 a	3 b	6 c
IMA-jet, 2006 & 2007	0	0 a	0 b	33 b
IMA-jet, 2006 & 2008	0	0 a	9 b	20 bc

Dave Smitley MSU Adrian, MI Study

Restricted Use Statement

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