

# AMV-1018: A New Potato Sprout Inhibitor



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## Background

- Potatoes need to be stored for up to 9 months after harvest
- Dormancy breaks generally after 1-2 months
- Tubers need to be treated for sprout control
- Alternatives to chlorpropham (CIPC)

# Road from Discovery to Commercialization

- AMVAC licensed exclusive US/Canadian patents from Washington State University in December 2005
  - Second broader patent filed August 2008
- Many compounds are globally considered “flavoring agents” and used widely in a broad range of food products
- AMV-1018 (3-decen-2-one) proof of concept completed (2007)
  - Tested on key potato types, 2-3 applications/season necessary
- Manufacturing method optimized (2008)
- Developed formulations (ECs) and regulatory data package (2008-2009)
- EPA-BPPD/PMRA submission (October 2009)
  - 98%TGAI/MUP; 90%EC and 67.5%EC
- Target launch: 2011

# Screening Study for Sprout Control in Russet Burbank Potatoes Stored at 16°C for 31 Days

Inhibitor (mmol/kg)

Control

0.25

0.50

0.75

1.0



t-2-decenal

3-decen-2-one  
AMV-1018

 AMVAC

# AMV-1018: Rescue of Sprouted Potatoes



Russet Burbank tubers treated with 115 ppm of AMV-1018 (left), 12DAT1  
Stored at 16 deg C

Dr. Knowles, WSU



# AMV-1018: Characteristics

- Color and Physical state: Pale yellow liquid, non-greasy
- Chemical Name: 3-decen-2-one
- CAS Number: 10519-33-2
- EINICS Number: 234-059-0
- FEMA Number: 3532
- Density: 0.84 g/cm<sup>3</sup> at 25 deg C
- Molecular Weight: 154.2
- Flash Point: 91.7 deg C
- Boiling Point: 90 deg C at 11mm Hg
- Solubility: 100% soluble in alcohol, almost insoluble in water
- Flavoring Profile: Used in a blend to obtain apricot, butter, cheese, citrus, cream, cucumber, grapefruit, jasmin, mandarin, peach, pear and tangerine flavorings
- Natural occurrence: Mushrooms (*Boletus* spp)
- Direct Food Additive : US, Canada, EU and Japan

## AMV-1018: Product Highlights

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- Unlike CIPC, AMV-1018 needs to be applied to potatoes **after** the potatoes have broken dormancy (“peeping”).
- Leverage the tuber’s natural dormancy period
- Meristematic tissue in sprouts is destroyed and under typical storage conditions, effect lasts for 2 – 2.5 months, depending on the potato variety
  - Typically 2-3 applications will be required during the course of the storage season
  - 1-2 CIPC/CIPC combination treatments can hold potatoes for the season
  - AMV-1018+CIPC (low rate) provided excellent control
  - Potential candidate for “Organic” potatoes or markets which do not desire CIPC residues

# AMV-1018: Product Highlights

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- USDA color, flavor, texture, taste, phytotoxicity tests showed no effect
- Can be fogged easily with conventional thermal fogging equipment
- 24 h recirculation is required
  - Movement through the potato pile is critical
- Can be safely used for preventing sprouts in potatoes undergoing reconditioning
  - Process & fresh market potatoes
- Can be effectively used to “rescue” potatoes with sprouts which are up to 2.5cm long
- Excellent partner for CIPC. Use CIPC early season (low rates) and follow up with AMV-1018 on an as-needed basis