Nitrogen Management

Farming for our Future: Canada's 150th

Paul Foran

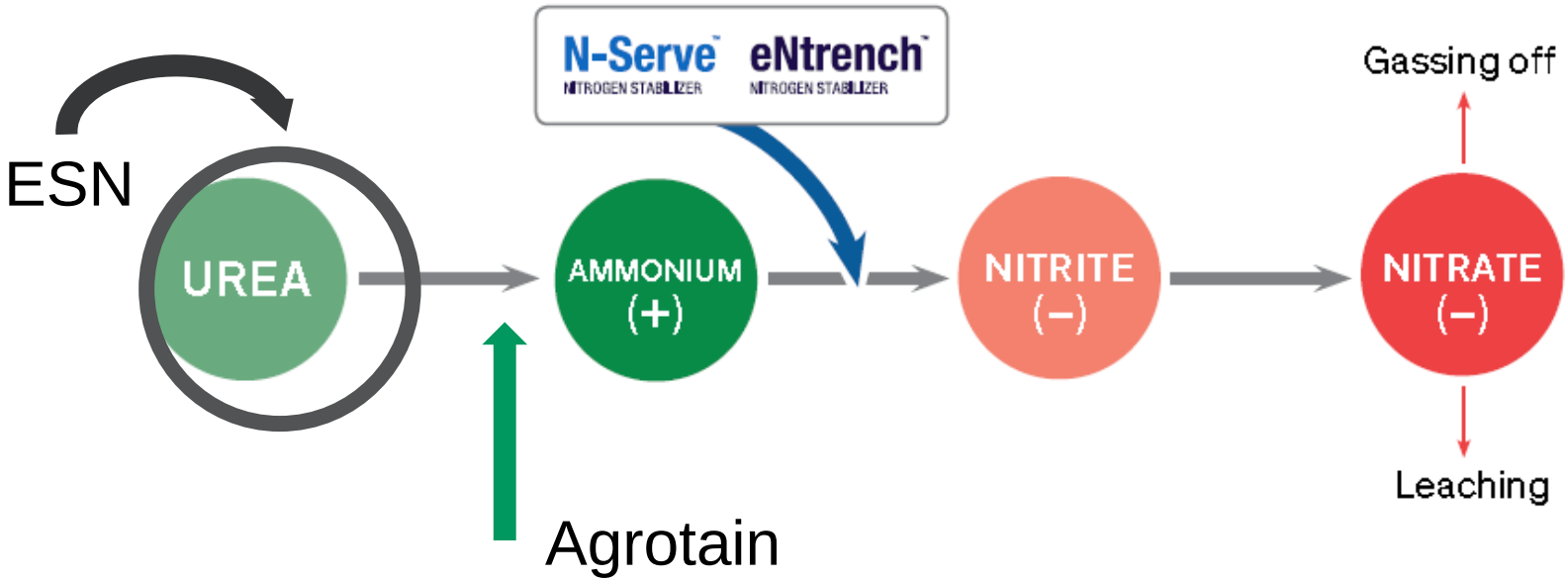
N-Serve™ NITROGEN STABILIZER

eNtrench™ NITROGEN STABILIZER

DOW® Dow AgroSciences

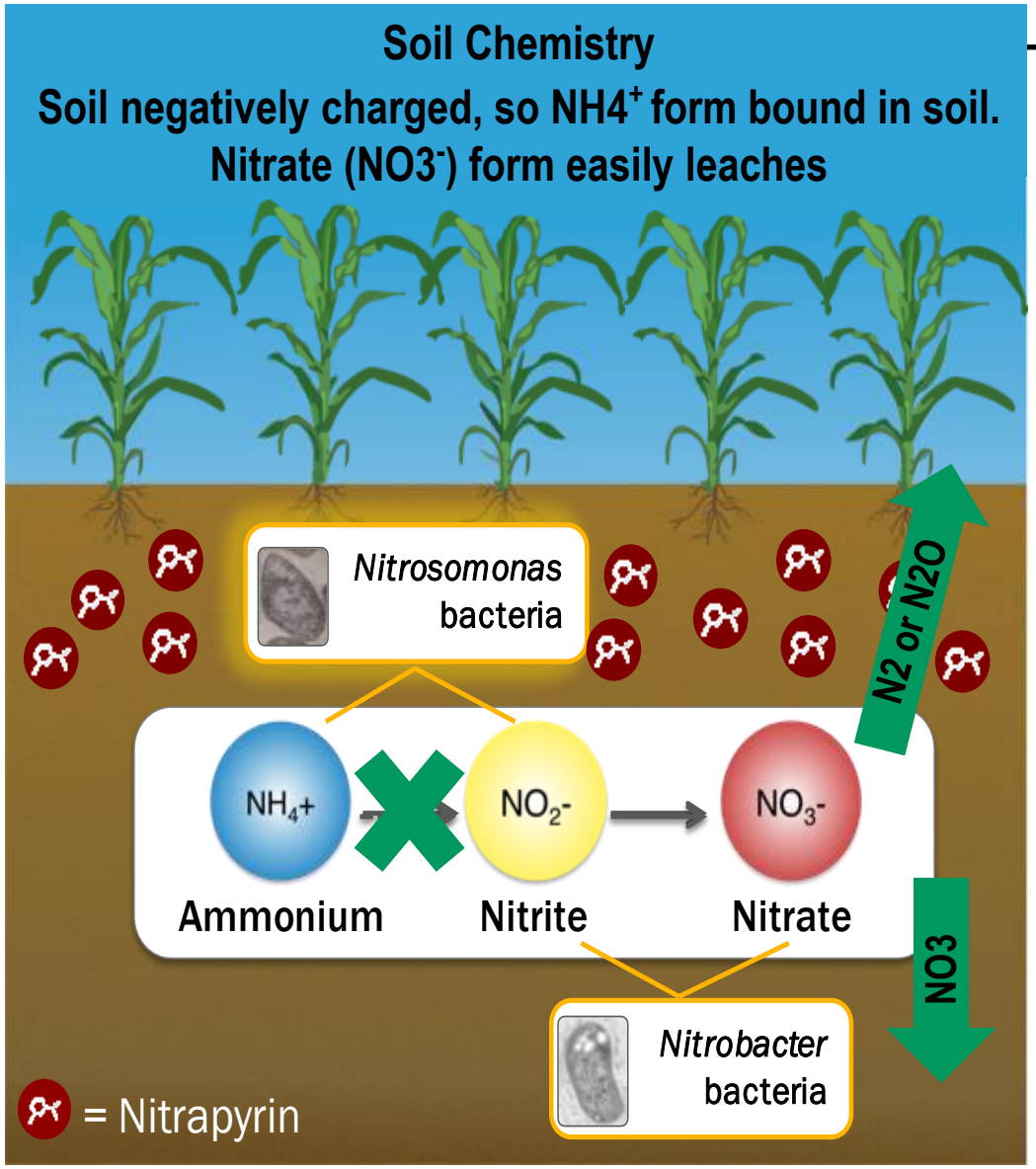
Solutions for the Growing World

HOW DO NITROGEN STABILIZERS WORK?



eNtrench, N-Serve keep nitrogen in the positive ammonium form longer and it will stay in the root zone ALWAYS available for plant uptake

Mode of Action



Mode of Action

Nitrapyrin temporarily and selectively slows activity of widely present *Nitrosomonas spp.* soil bacteria, which otherwise quickly convert NH_4^+ to forms that may be lost from soil (NO_3^- or N_2O)

-Inhibits ammonia monooxygenase enzyme

Bottom Line

Fertilizer nitrogen remains available to plants in the root zone in the NH_4^+ form for a longer period of time, which can enhance nitrogen utilization and can optimize yield potential

N-Serve™ and eNtrench™ nitrogen stabilizers

- Nitrapyrin approved for use in Canada mid-2014
- Two end-use products:

N-Serve™
NITROGEN STABILIZER

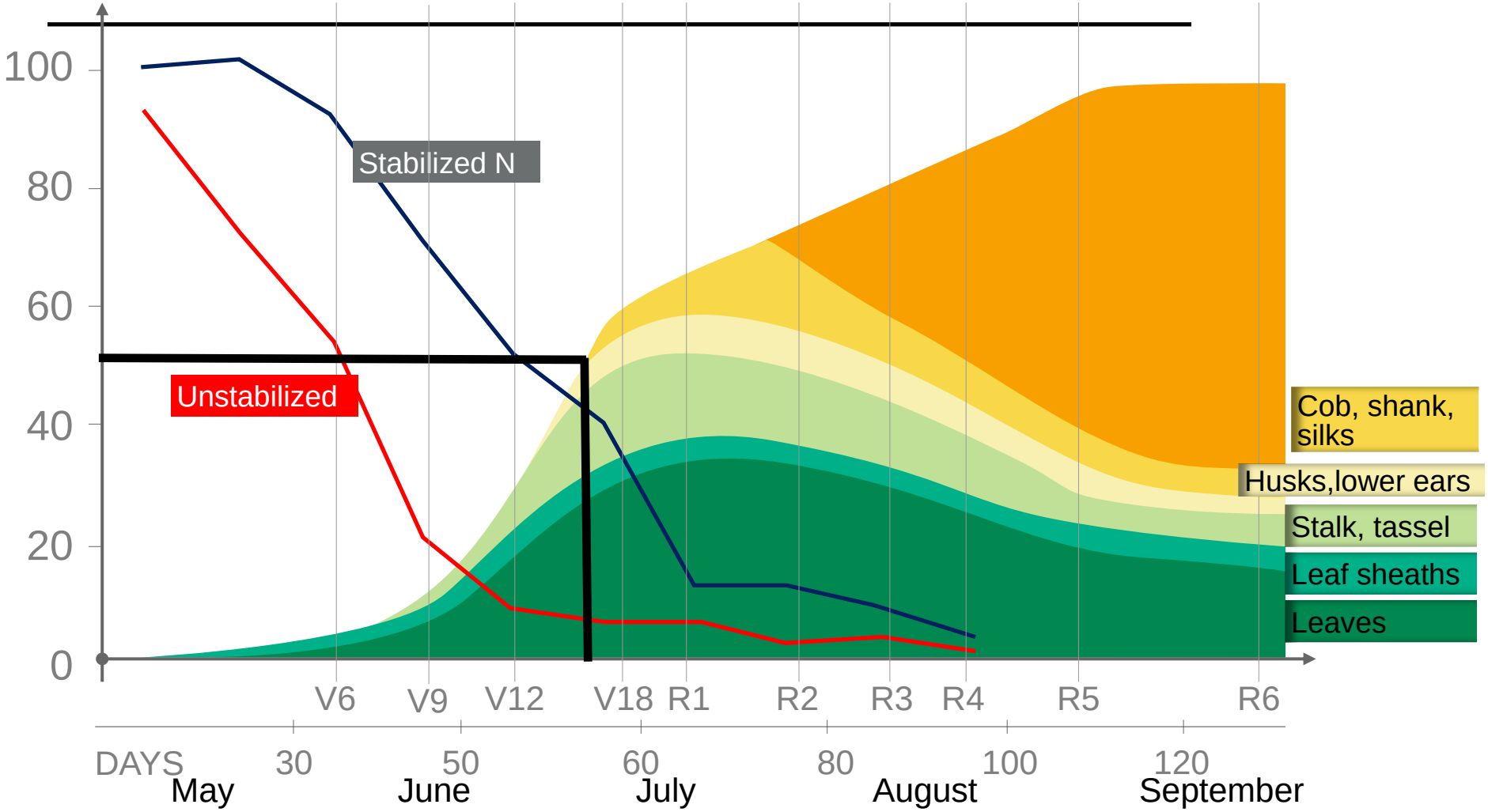
- EC formulation (218 g ai/L)
- Use rate of 950 mL/Acre
- Use with Anhydrous Ammonia
- Use in corn, cereals and canola
- Fall or spring applications

eNtrench™
NITROGEN STABILIZER

- CS formulation (190 g ai/L)(capsule suspension)
- Use rate of 1.1 L/Acre
- Use with UAN, urea & manure
- Use in corn, cereals and canola
- Fall, spring and side-dress applications

Nitrogen Uptake in Corn

% of total uptake and applied nitrogen (May 1st planting)



Source: Adapted from How a Corn Plant Develops, Special Report 48 Iowa State University

BENEFITS OF USING ENTRENCH NITROGEN STABILIZERS

INCREASED

CORN YIELD[1] 7%

WHEAT YIELD[2] 5.8%

CANOLA YIELD[2] 8.1%

NITROGEN RETENTION 21%

BASED ON 2015 FIELD SCALE TRIALS RESULTS.

DECREASED

GREENHOUSE GAS EMISSIONS[3] 51%

NITROGEN LEACHING[3] 16%

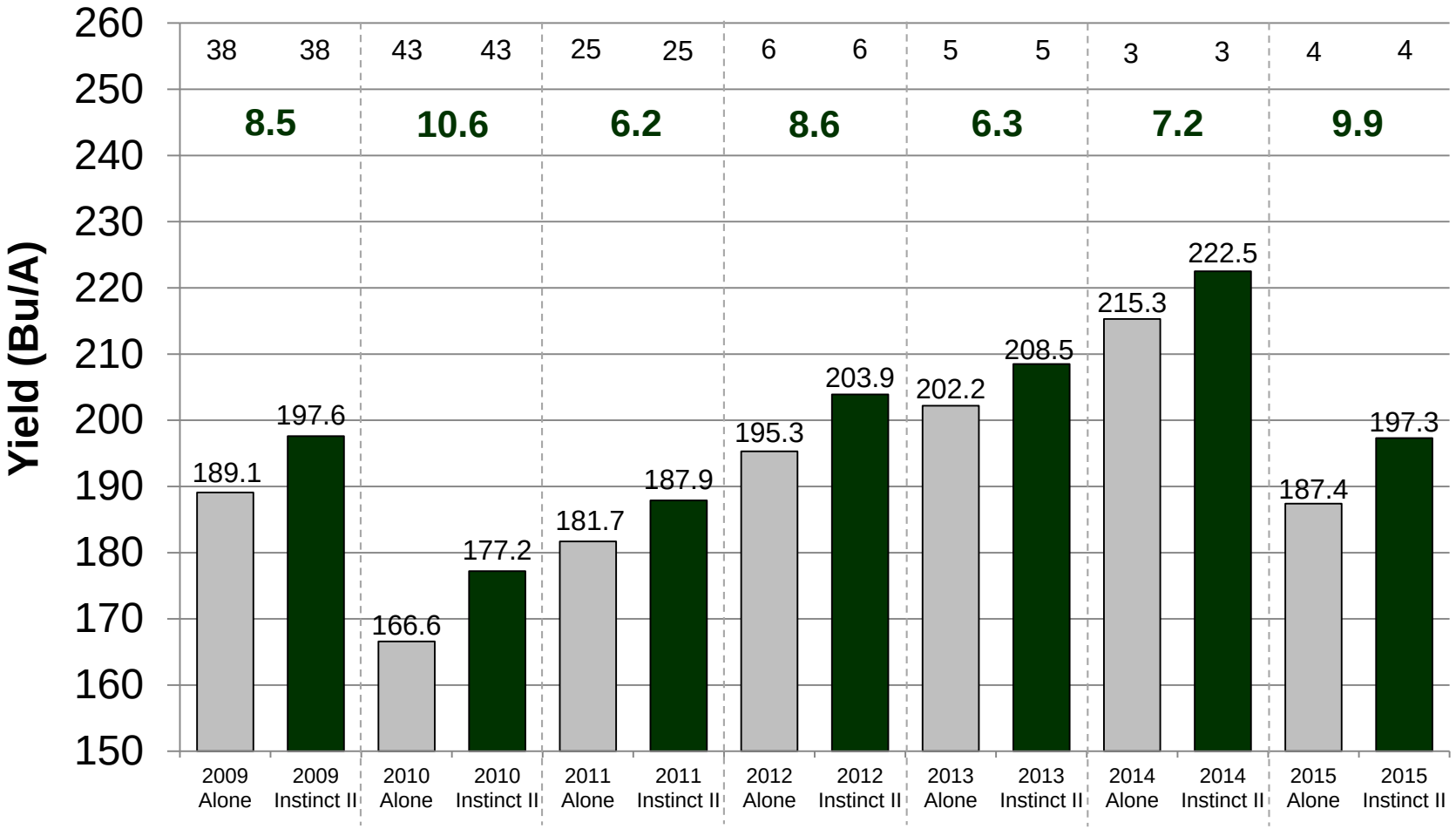
Visit protectyournitrogen.ca or call 1-800-667-3852.

eNtrench™

NITROGEN STABILIZER

Nitrapyrin (Instinct® II) Affect on 2009-2015 Corn Yields: USA

Averaged Across Application Timings – Liquid Manure



eNtrench N-Serve Key Points

- nitrapyrin
  - ***Always*** works at inhibiting *Nitrosomonas* bacteria in moist soils
  - Always stabilizes applied Nitrogen by inhibiting the nitrification of soil stable ammonium nitrogen
  - Applied Nitrogen is available to the plant immediately
  - Slows the conversion of ammonium to nitrate
  - Maximises yield potential – Nitrogen is available when and where the crop needs it
  - Reduces nitrogen losses to maximise yield potential and can have an environmental impact
    - Leaching (reduction 16%)
    - Denitrification (reduction of greenhouse gases 51%)
  - Maximizes the return on the nitrogen investment