

2004

Annual International Research Conference on  
Methyl Bromide Alternatives and Emissions  
Reductions

**SEP™ 100**

A Sodium Azide-Based Broad  
Spectrum Pesticide

D. J. Richards

# SEP™ 100

Sodium Azide

- Sodium Azide ( $\text{NaN}_3$ ) is a well researched and understood chemical
- For centuries it has been used:
  - as a pharmaceutical
  - as an intermediate to make modern pharmaceuticals
  - pesticide
  - gas generants, automobile airbags
  - preservative
  - manufacture explosives

# SEP™ 100

## Pesticide Use of Sodium Azide

- The first recorded use of sodium azide in a pesticide formulation was in the 1920s
- 1970s – four azide, sodium azide and potassium azide, based pesticides were registered
- These were solid, topically applied and primarily for use in tobacco and peanut crops
- 2001 American Pacific Corporation and Auburn University collaborate to advance the research and development of azide-based pesticide technology

# SEP™ 100

A Sodium Azide-Based Broad Spectrum Pesticide

- **SEP™ 100**
  - Blue liquid
  - 20 % active ingredient, 80% various inerts
  - Strong ammonia (NH<sub>3</sub>) odor
  - Application rates < 100 lbs ai/a
  - Drip Applied
  - Stenching agent and dye purposely added for improved handling and safety

# SEP™ 100

## Application

- **SEP™ 100**
  - Drip applied, no specialized equipment necessary
  - Rates of application
    - (100 lbs ai/a) ~ 20 ppm controls weeds
    - (40-100 lbs ai/a) 10-20 ppm controls nematodes
    - (8–40 lbs ai/a) < 10 ppm controls bacteria & fungi
    - < 5 ppm prior to planting

# SEP™ 100

## Broad Spectrum Activity

- **SEP™ 100**

Several trials have proven that SEP™ 100 can effectively control a broad spectrum of soil borne

- Nematodes
- Weeds
- Fungus
- Bacteria
- Insects

In one safe and simple application process

# SEP™ 100

Applicator and Environmentally Acceptable

- **SEP™ 100**
  - Is a safe and highly effective pesticide
  - Half life of active ingredient is 3 -10 days
  - Breaks down into naturally occurring Hydrogen and Nitrogen compounds
  - Zero Ozone Depleting Potential

At times SEP™ 100 is better than MBr and other common pesticides

# SEP™ 100

## Trial Conclusions

- **SEP™ 100**
  - is a highly effective safe pesticide
  - is environmentally acceptable
  - is a broad spectrum nematocide, fungicide, bactericide and herbicide
  - is not a soil sterilant and persists in the soil < 21 days
  - utilizes common drip application equipment with few and minor changes
  - is in the US EPA registration process
  - will soon be included in foreign trials

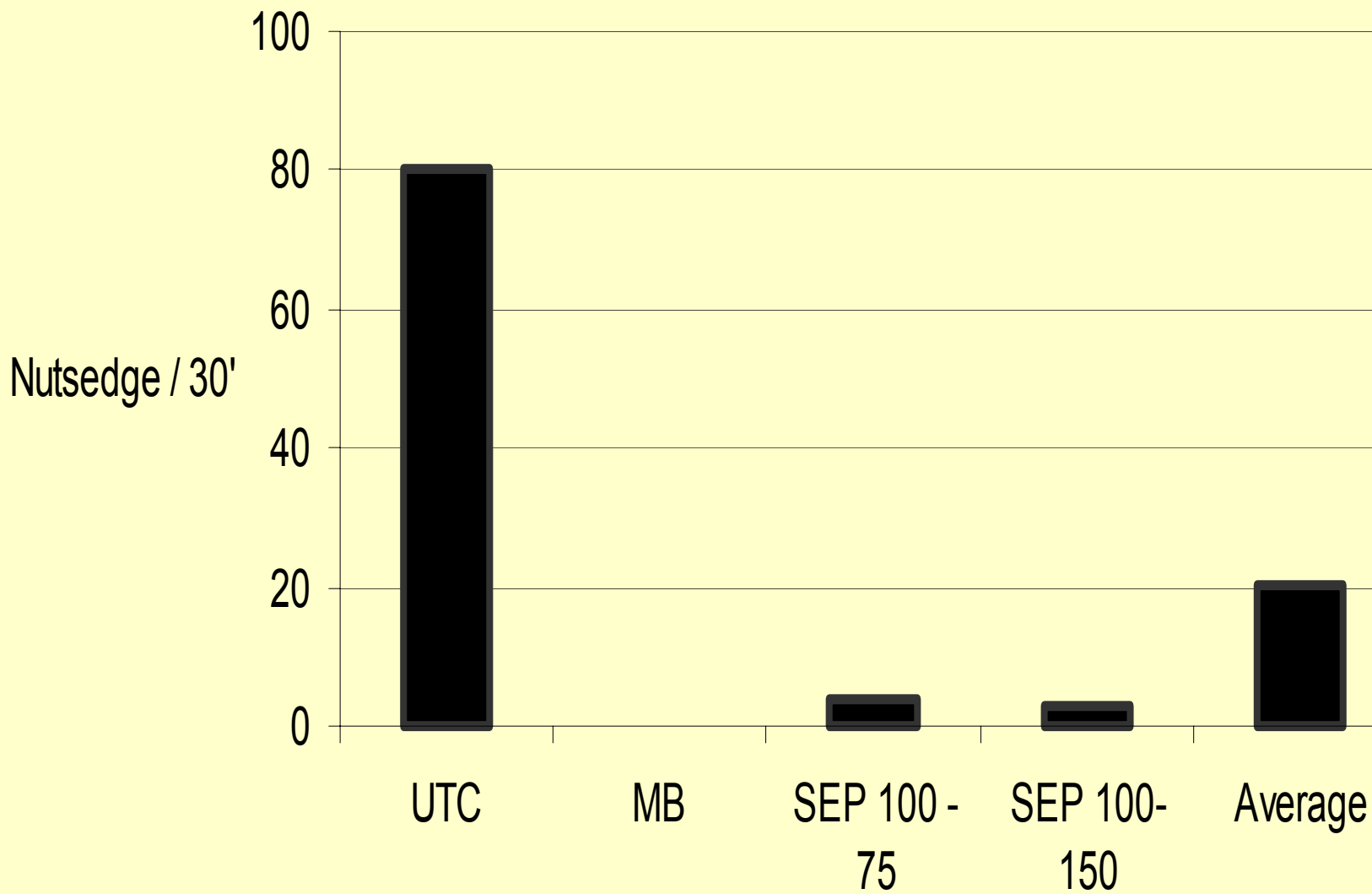


# SEP™ 100

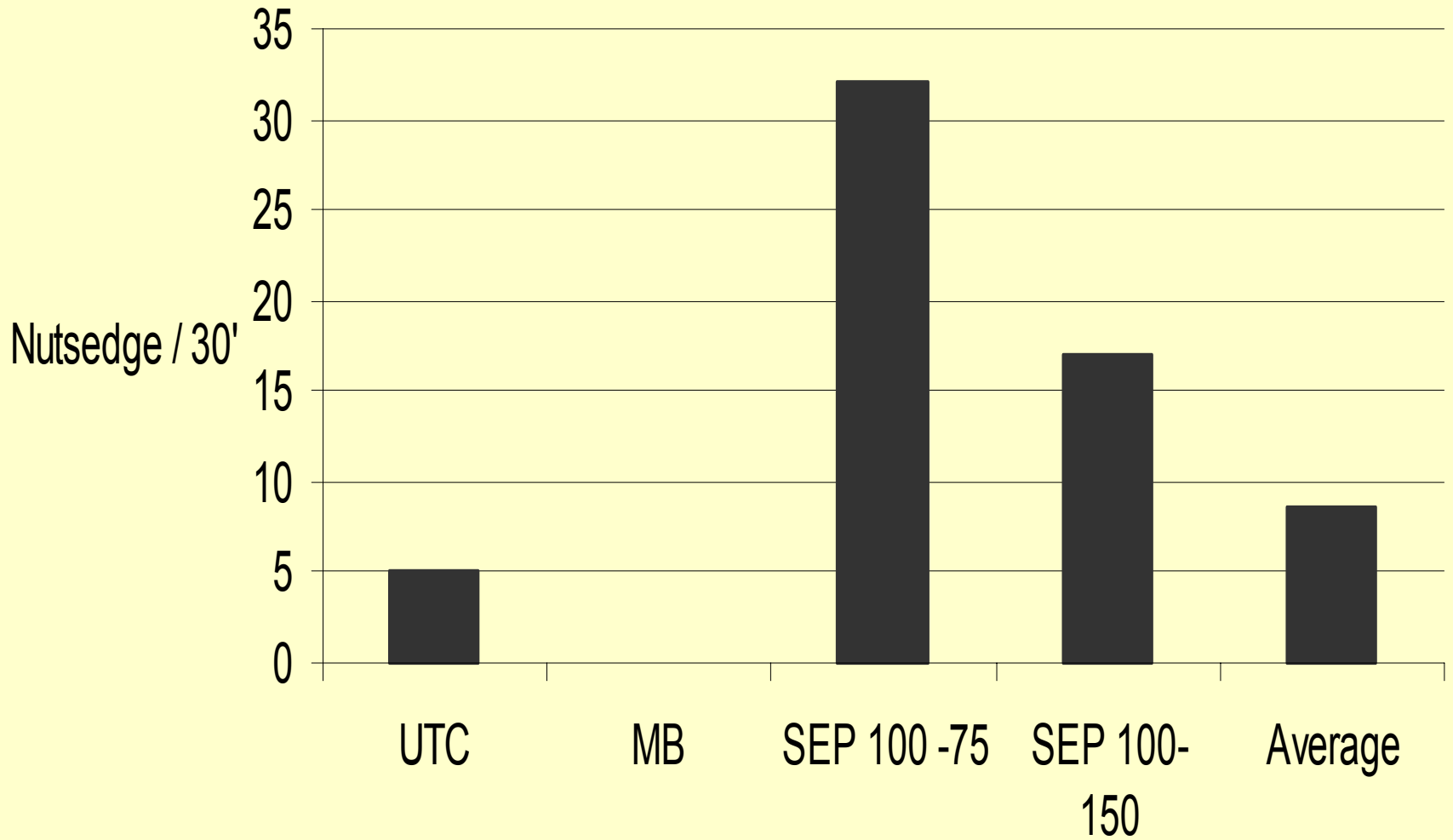
## Tomato Trial

- Fall 2003, Tomato Trial in Bradenton, Florida, GCREC
- SEP™ 100 was applied September 24 and 25, 2003, and planted 17 days later
- Two rates of SEP™ 100, 75 and 150 lb ai/a, compared to Untreated Control (UTC), MBr and 14 other MBr alternatives
- MBr 67/33 was applied at a rate of 350 lbs/acre

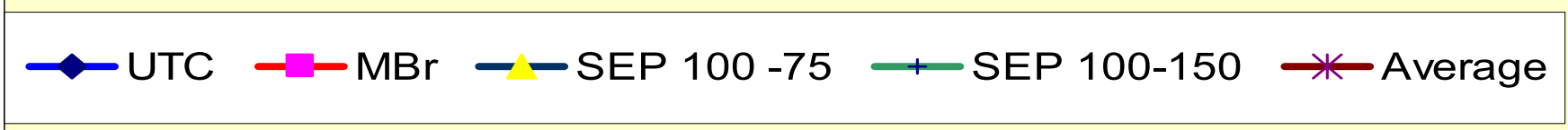
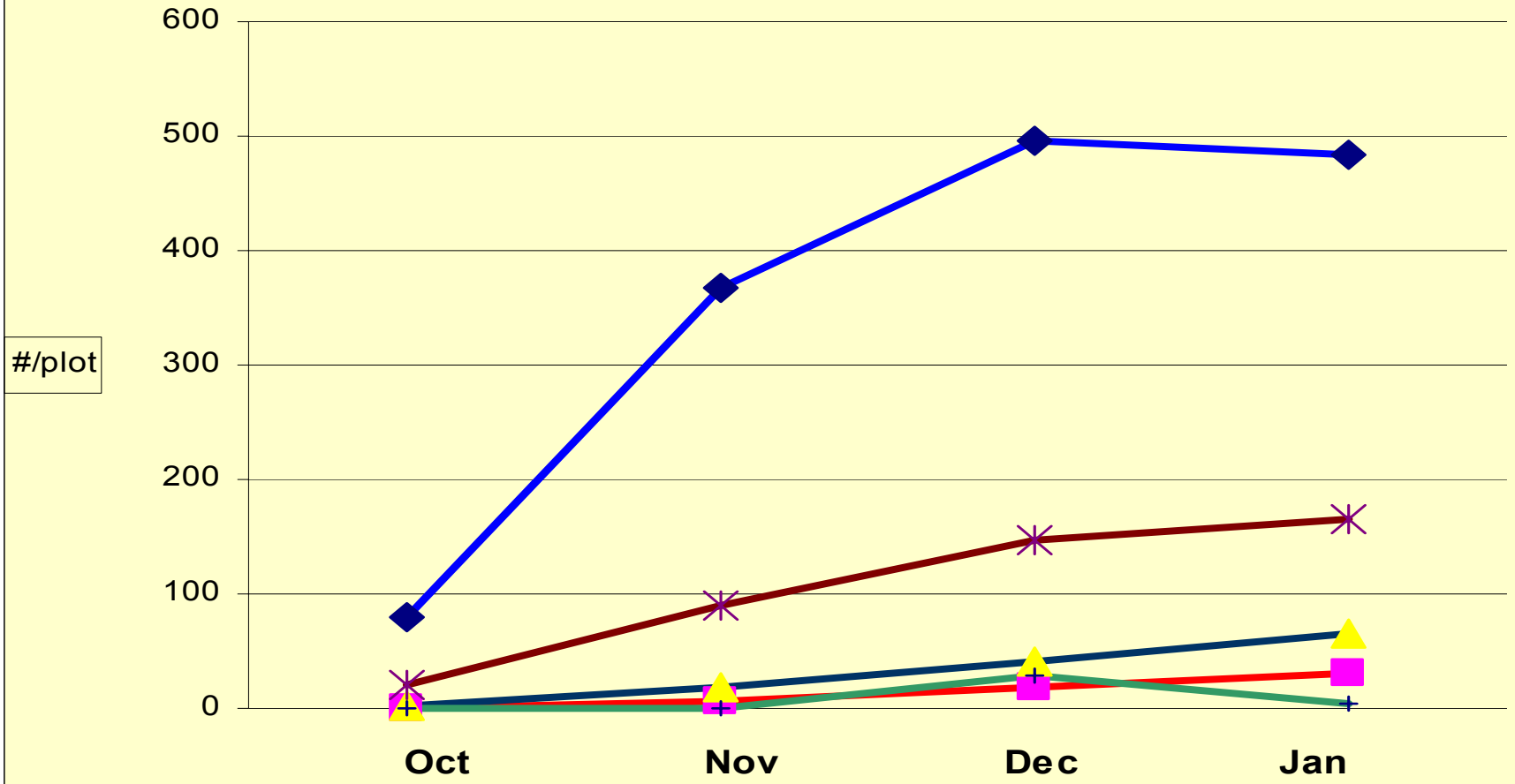
# 10/10/03 Live Nutsedge Count



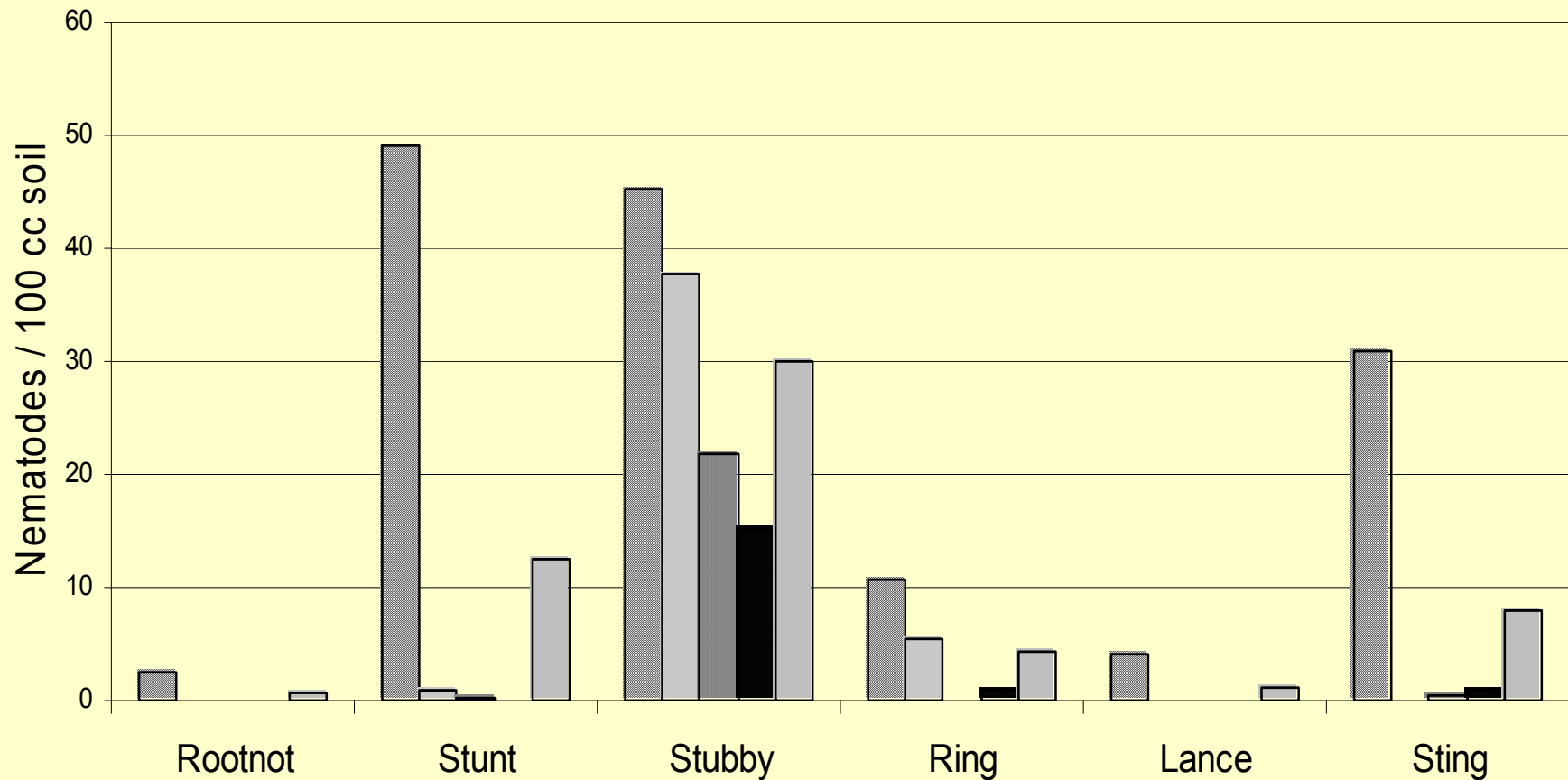
# 10/10/03 Dead Nutsedge Count



# Monthly Nutsedge Counts



# 12/15/03 Nematode Count



UTC

MBr

SEP 100 -75

SEP 100-150

Average

# SEP™ 100

## Tomato Trial



**350 lb MBr / a**



**Untreated Control**



**100 lb ai / a SEP 100**

# SEP™ 100

## Tomato Trial



**Untreated Control**



**200 lb ai/a SEP 100**

# SEP™ 100

## Tomato Trial



**350 lb MBr / a**



**100 lb ai/a SEP 100**



# SEP™ 100

## Typical Application



# SEP™ 100

- We take this opportunity to express our sincere appreciation to those who have supported this endeavor.
- Planned research and development will lead to new products, applications and application methods.

Douglas J. Richards  
September 2004

American Pacific Corporation  
3770 Howard Hughes # 300  
Las Vegas, NV USA  
89109

Phone: 702 735 2200  
Fax: 702 735 4876

[www.apfc.com](http://www.apfc.com)