

**STRAWBERRY YIELD WITH VARIOUS
RATES OF CHLOROPICRIN AND INLINE
APPLIED UNDER VIF**

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Properties of Fumigants

Fumigant	Mole. Wt.	Density at 20°C	Boil. point	Vapor press.	H ₂ O solubility
	g mol ⁻¹	g ml ⁻¹	°C	mm Hg	% w/w
MeBr	95	1.75	4	1420	1.34
Pic	164	1.66	112	18	0.2
1,3-D cis	111	1.21	104	34	0.2

Properties of Fumigants

Fumigant	Air/Water partitioning (K_H)	Soil adsorption (K_d)	Soil Half-life (day)
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MeBr

0.244

0.07-0.1

22

Pic

0.093

0.14-0.3

1

1,3-D cis

0.056

1.3-1.5

7

Methyl Bromide Shank Injection



The fumigant must be in the soil at lethal concentration long enough to kill the target pest (Σ Conc. X Time).

OBJECTIVES

- **To determine the minimum effective rates (doses) of drip-applied chloropicrin and Inline under VIF for strawberry production in CA.**
- **To evaluate sequential metam application after chloropicrin and InLine under VIF for strawberry production.**

METHODS – Dose studies

- **Field trials were conducted in Oxnard and Watsonville during the 2002-03 & 2003-04 seasons**
- **Inline and Pic were drip applied at 50, 100, 200, 300, & 400 lbs/ac**
- **Standard MB/Pic, and untreated checks were included**
- **Replicated 4 times**

METHODS - Demonstration

- **Field demonstrations were located at Oxnard, Santa Maria and Watsonville, CA**
- **Inline and Pic were applied by drip fumigation at 100, 200, & 300 lbs/ac**
- **Standard MB/Pic, and untreated checks were included.**
- **Replicated 2 times.**



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Bed Shank Injection





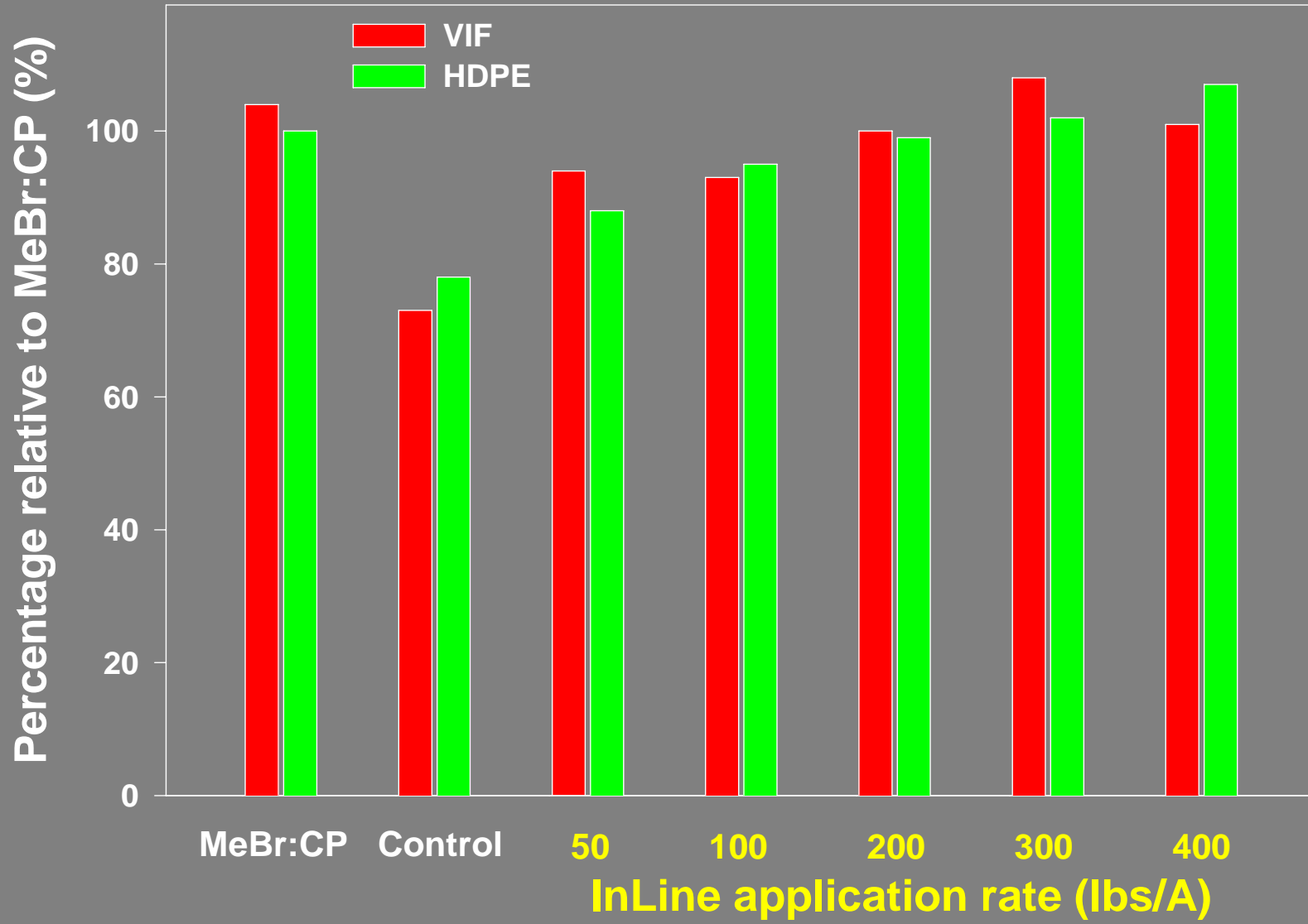
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RESULTS

(Total strawberry yield)

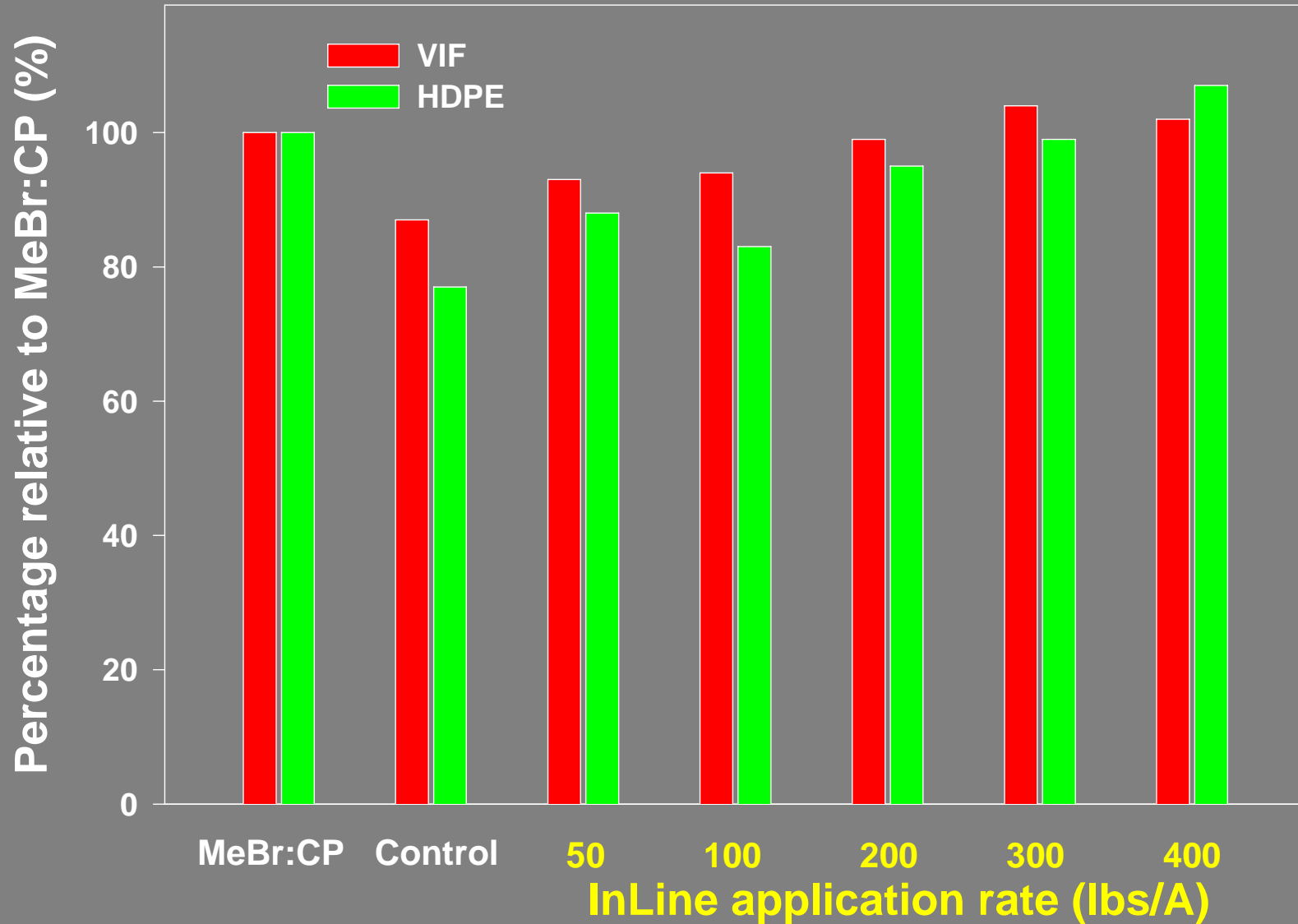
Research Plots

Watsonville, 2002/03



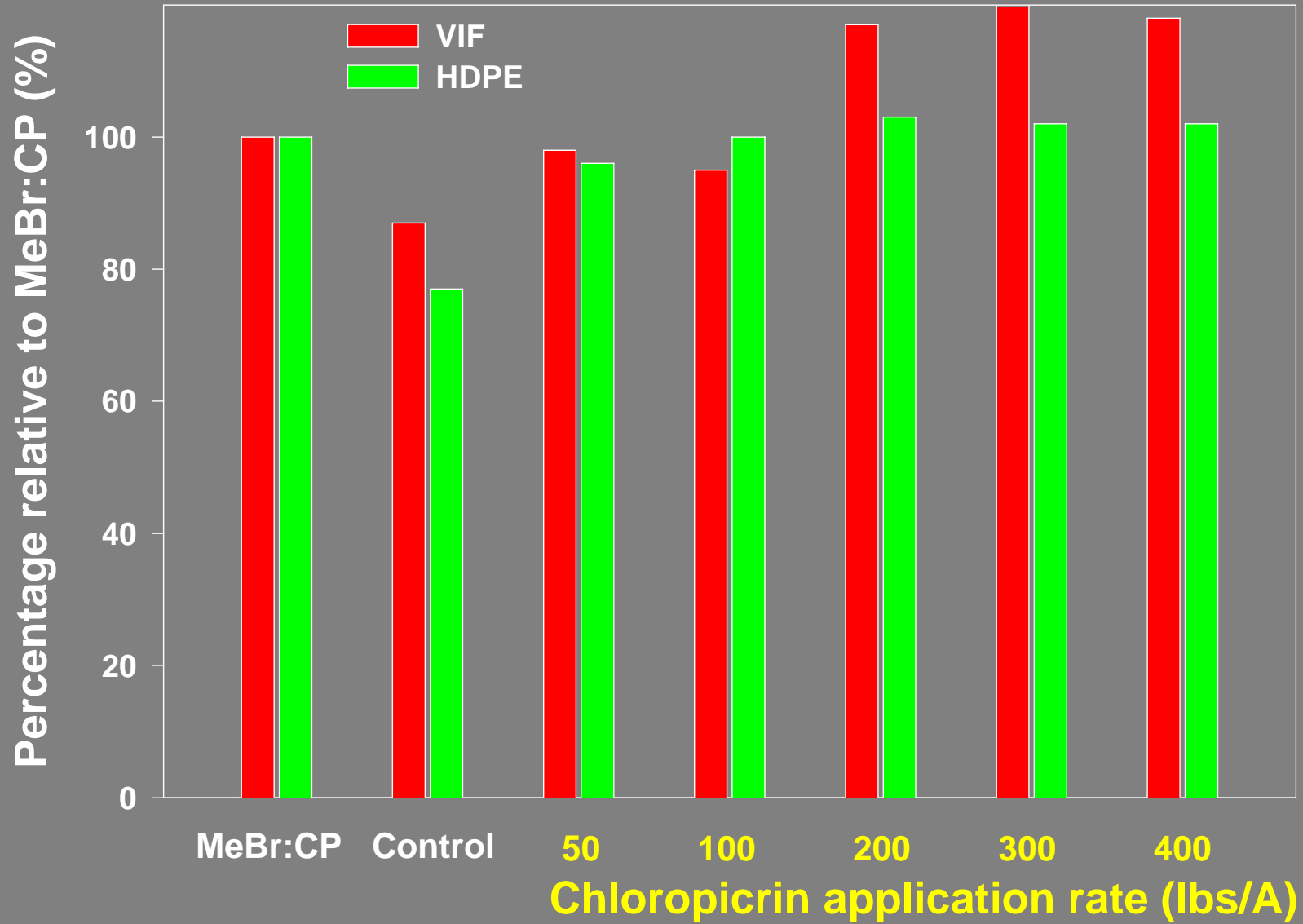
Strawberry yield relative to MB/Pic (350 lb/ac)

Watsonville - Average 2 yrs



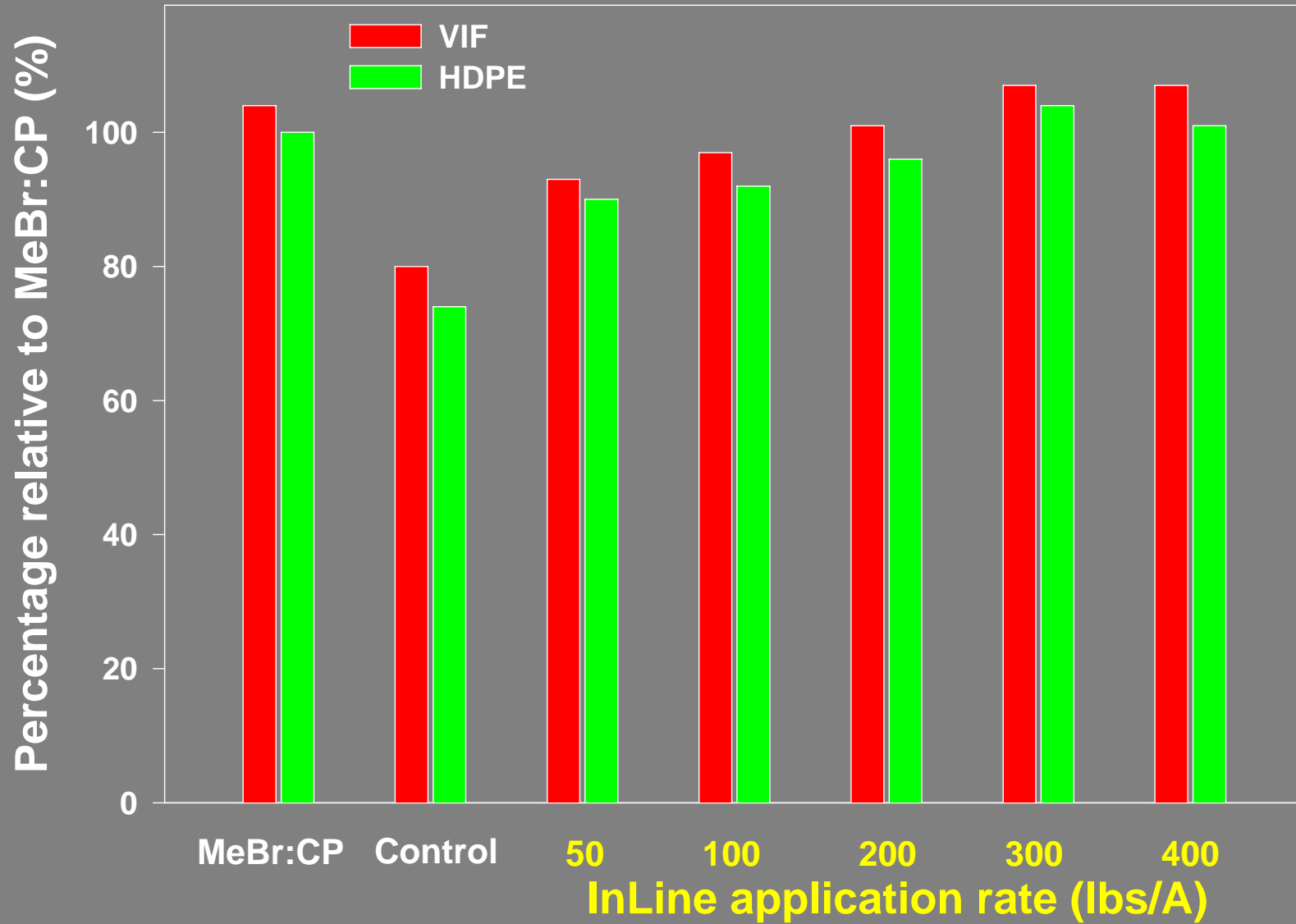
Strawberry yield relative to MB/Pic (350 lb/ac)

Watsonville - Average 2 yrs

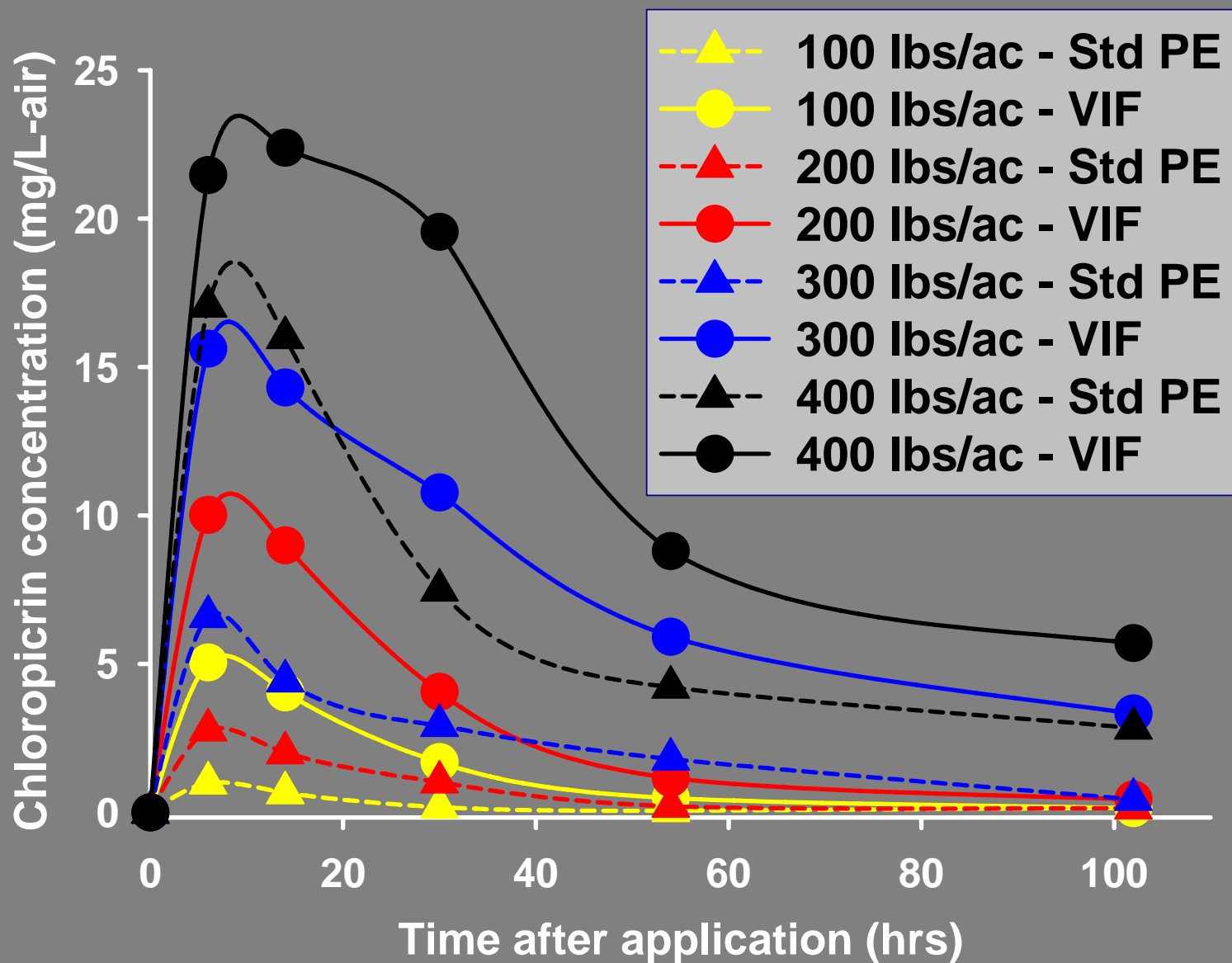


Strawberry yield relative to MB/Pic (350 lb/ac)

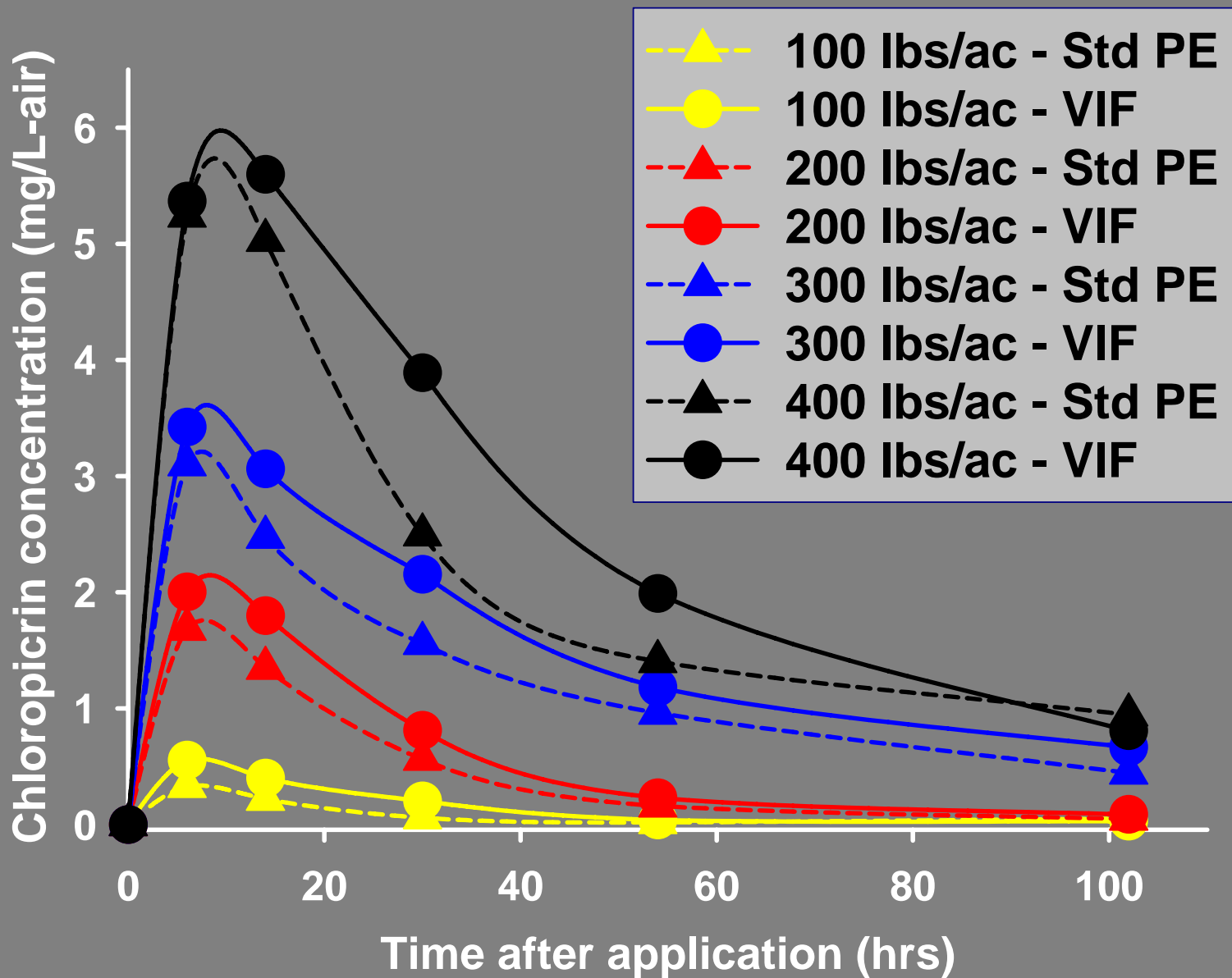
Oxnard - Average 2 yrs



Strawberry yield relative to MB/Pic (350 lb/ac)

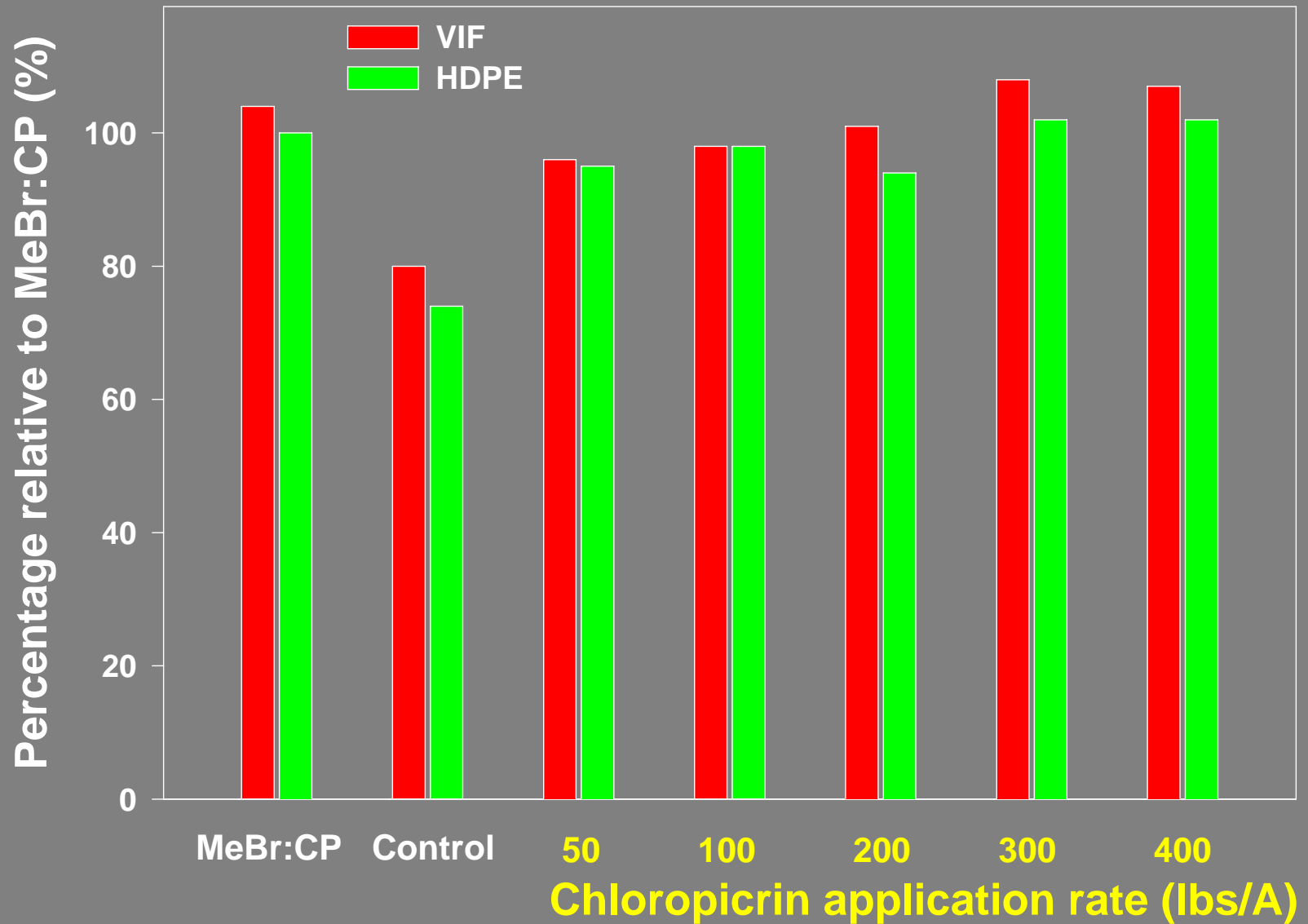


Average chloropicrin concentration (mg/L air) above the soil under VIF and Std PE tarp



**Average chloropicrin concentration (mg/L air)
at 12 inches deep under VIF and Std PE tarp**

Oxnard - Average 2 yrs



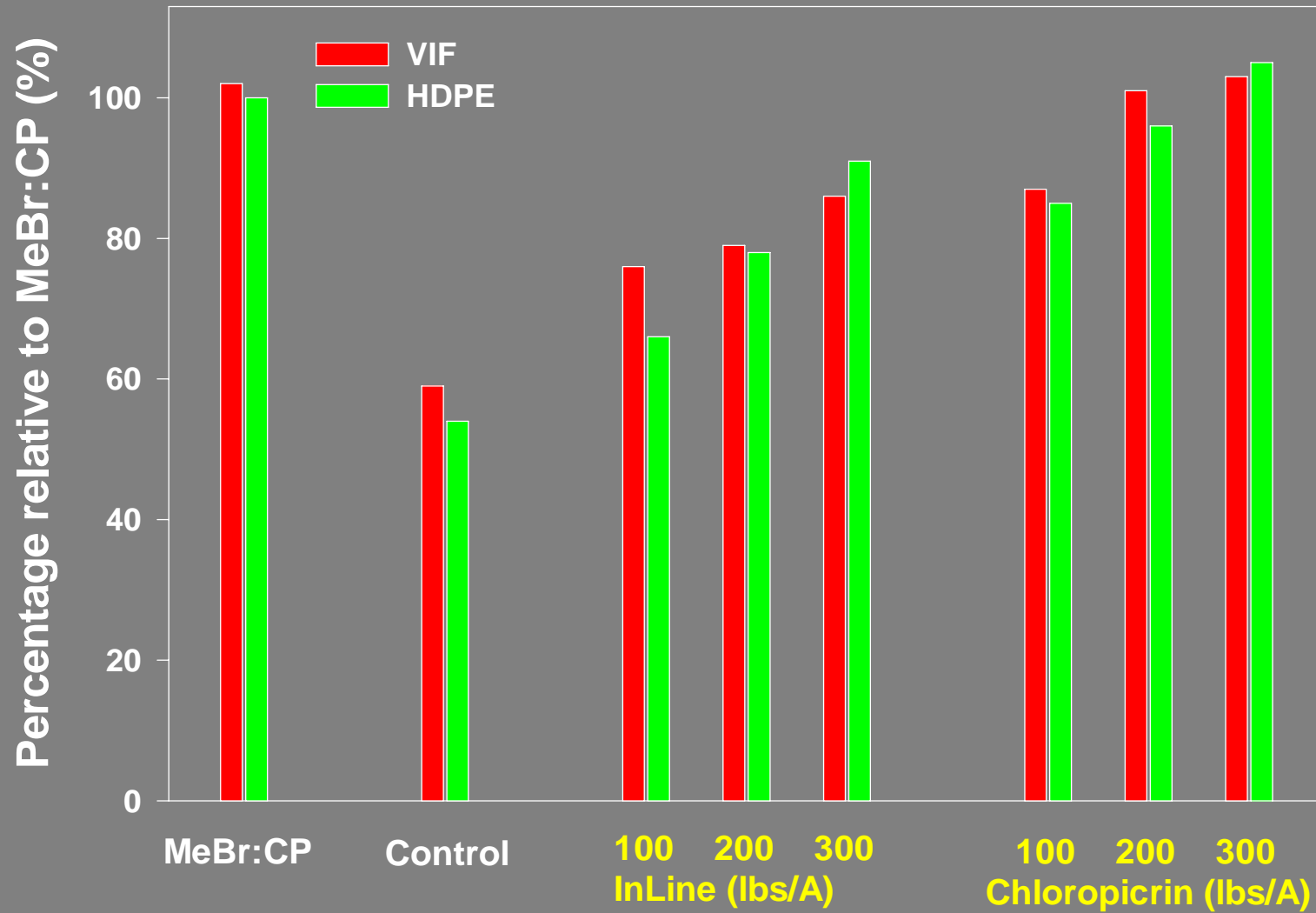
Strawberry yield relative to MB/Pic (350 lb/ac)

RESULTS

(Total strawberry yield)

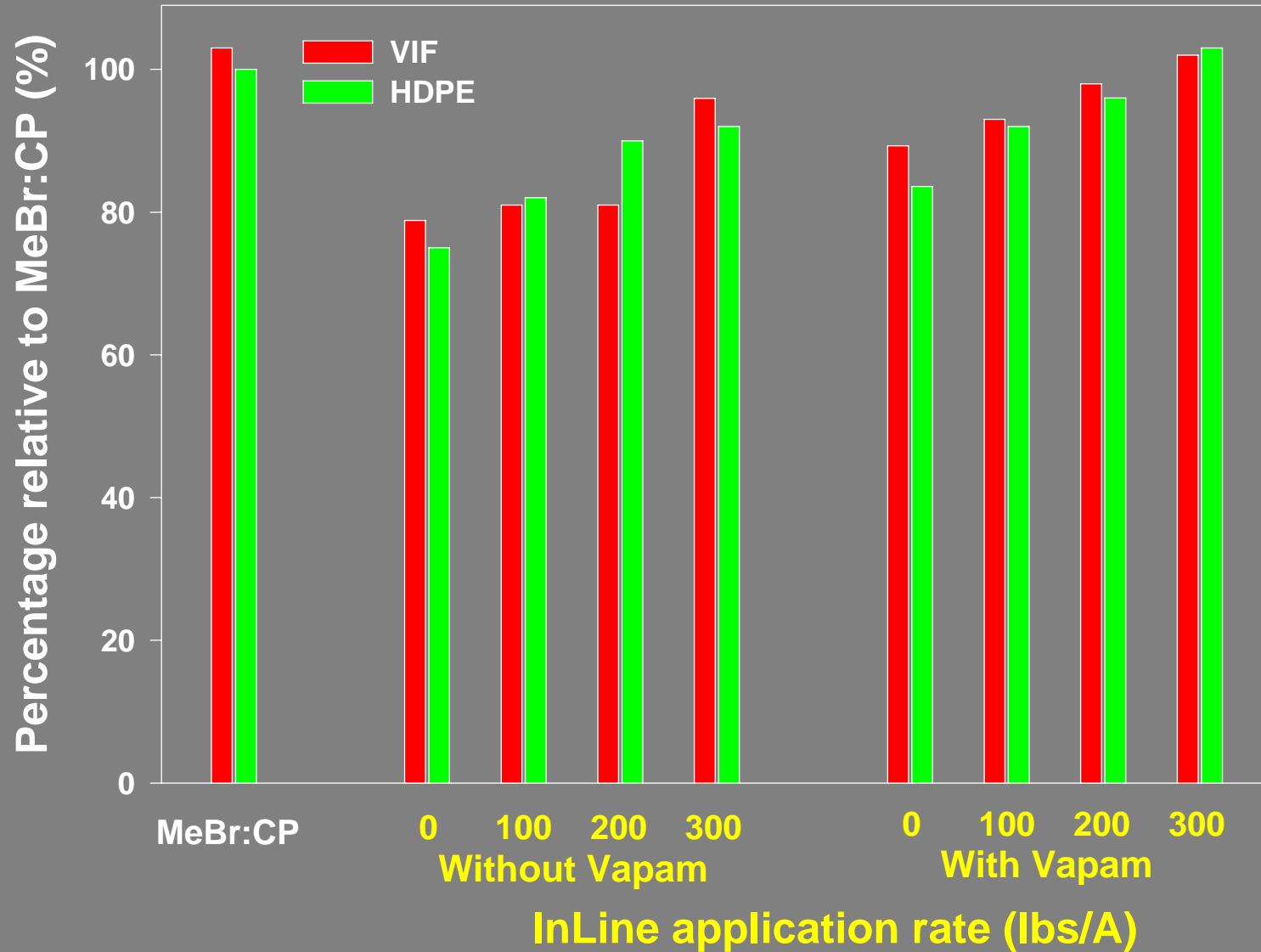
Demonstration Plots

Watsonville, 2002



Strawberry yield relative to MB/Pic (350 lb/ac)

Demonstration Project - Average of 6 trials



Strawberry yield relative to MB/Pic (350 lb/ac)

Summary

- **VIF contributed to a 4 to 6% increase in total yield compared to HDPE.**
- **A minimum of 300 lbs/ac of Inline or 200 lbs/ac of chloropicrin alone are needed for commercially acceptable yields regardless of film type.**
- **Sequential drip application of metam sodium following 300 lbs/ac of Inline or 200 lbs/ac of chloropicrin resulted in commercially acceptable yields.**

Acknowledgments

- **CA Strawberry Commission**
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- **Mandalay Berry Farms – John Dullam**
- **D&B Specialties – Daren Gee**
- **Driscoll's – Tom Sjulín**
- **AMVAC – LA, CA**
- **Niklor Chemicals**
- **TriCal**
- **Dow Agrosiences**