IPM in Theory and Practice

Immediately after WWII it seemed for awhile that insect problems would be solved by a weekly (wash-day) application of DDT.

IPM was the idea that came from the “ashes” of that approach to insect control.

In simple terms, there are applications we should skip and some we can’t.

IPM and Pine Seedlings

90% of herbicides and insecticides are applied to three crops (cotton, corn, soybeans) at the per acre value of these crops IPM works fine

At the per acre values of pine seedlings, some IPM guides have to be abandoned.

IPM AND PESTICIDE USE IN THE NURERY COOP

IPM - once an idea to coordinate pesticide use for maximum efficiency to some it is now just to reduce use.

Economic Threshold (ET)**-** The point at which it is cost effective to apply pesticide. NA in forest tree nurseries due to crop values per acre.

Key Pest – The pest that is the main target of treatments. Other pests usually controlled as a side benefit. Lygus bugs and LCB's are key pest.

HAZARD

Hazard – Estimates of hazard are based on observed acute dermal (to a lesser extent oral) ld50's and, when available, use experience. You can probably think of many qualifiers.

Relative Coop Hazard - a number that compares application hazard among the 25 pesticide applied to pine seedlings. It is equal to dermal ld50 / use rate in lbs ai / 100.

Estimated relative acute toxic hazards to users/applicators (Ware 94)

Most Dangerous	Dangerous	Less Dangerous	Least Dangerouss
Parathion (NA)	Bifenthrin (2000)	Diazinon (1)	Captan (25)
	Clopyralid (20)	Dimethoate (5)	Chlorpyrifos (10)
		Esfenvalerate - (667)	Malathion (67)
			Permethrin (4-400)
		Oxamyl (NA) ld50's 5 & 500	Triadimefon (43)

HAZARD

Product	Dermal	Use Rate	RCH
Pounce (EPA lable)	4,000	0.10	400
Pounce (24 c lable)	4,000	10	4
Stinger	2,000	1.0	20
Goal	10,000	0.05	200

The 6 fungicides used

Product	Lbs ai	Ai / ac	Dermal	Hazard
Bayleton	1315	0.23	1,000	43 **
Bravo	528	2.0	10,000	50
Captan	61	4.0	10,000	25
Subdue	61	0.3	3,000	100
Chipco	48	0.5	1,000	20
Cleary	2	0.3	10,000	333

Hazard is dermal / use rate

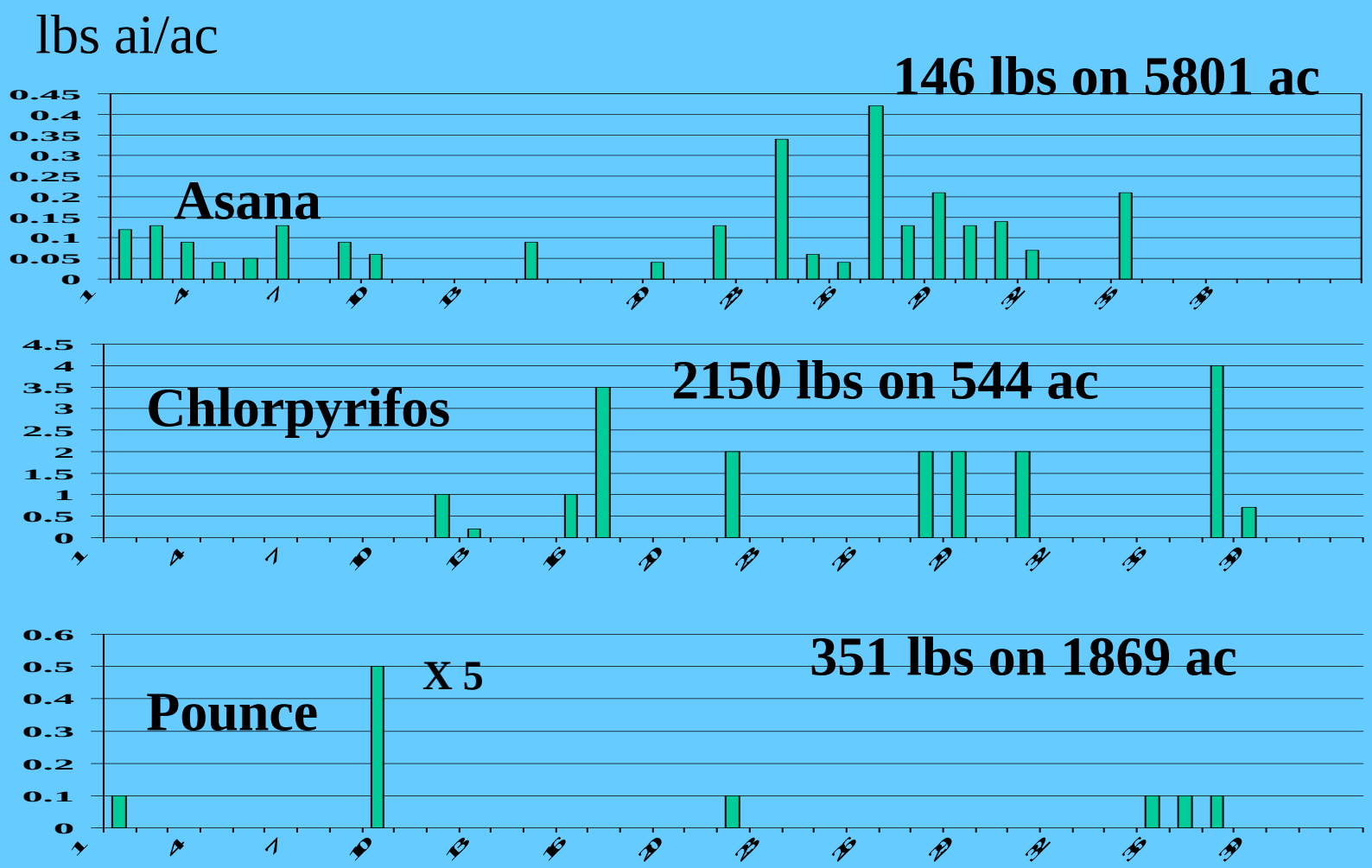
Thoughts re usage

NAME	LD50	Lb ai /ac	Acres	Lbs ai
Asana	2000	0.02	4761	124
Pounce EPA 24 c	4000	0.10 – 10	360 - 102*	87 – 1100*
Chlorpyrifos	2000	1 – 2	825	1917
Diazinaon	400	0.5 – 1.0	830	13
Cygon	150	0.1 – 0.3	544	6
Acephate	2000	0.3	39	12
Malathoin	4000	0.5	96	1

Insecticides used in pine nurseries

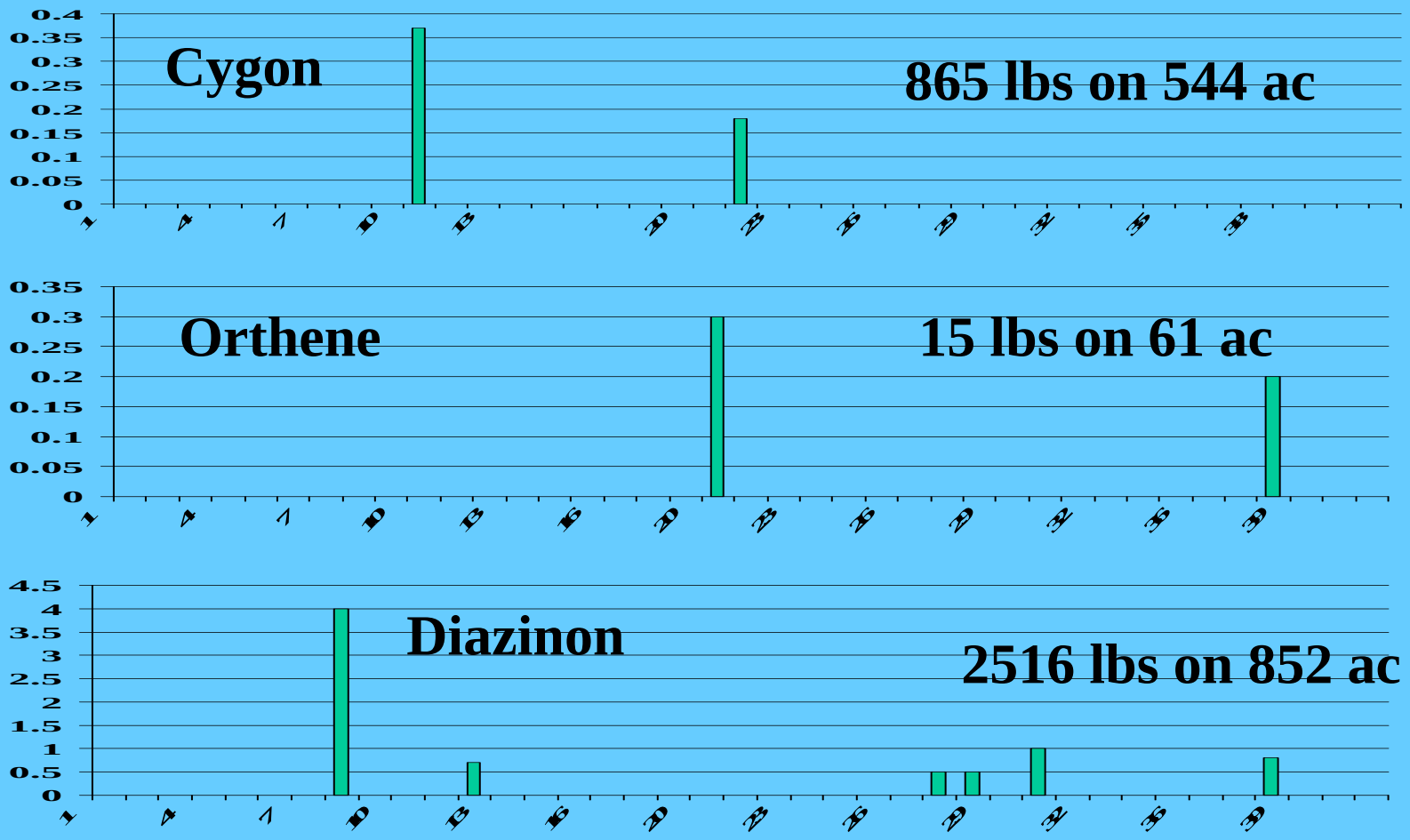
Name	**Action**	**“Group”**	**LD 50**
Asana	SynP	4th Gen	75 / 2000
Pounce	SynP	3rd Gen	4000/4000
Chlorpyrifos	OP -	Phenyl -	135 / 2000
Diazinon	OP	Phenyl -	300 / 400
Cygon	OP	Alaphatic	250 / 150*
Acephate	OP	Alaphatic	866 / 2000
Malathion	OP	Alaphatic	885 / 4000

Lygus Control



Lygus Control (alternatives)

lbs ai/ac



Summary thoughts for Insecticides

- Our use of Asana as the primary tool against Lygus is a good choice.
- Our use of chlorpyrifos as the primary tool against LCB is ok but this is a poor choice for Lygus.
- Acephate should be a better choice than dimethoate as a backup for Asana.
- *** Use the 24c for Pales only as intended!!
- There is probably a better choice than Diazinon for LCB.