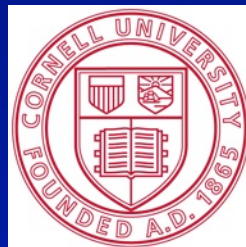


# Summer Management of Obliquebanded Leafroller by Monitoring Fruit Damage in Commercial Apple Orchards



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# Current Protocol for Managing OBLR in New York State Orchards



- ✂ Apply a petal fall spray against overwintering larvae
- ✂ Apply 2 sprays to control the summer generation of larvae (first egg hatch + 10-14 days later)
- ✂ Usually these treatments are prophylactic sprays based on previous history of OBLR damage

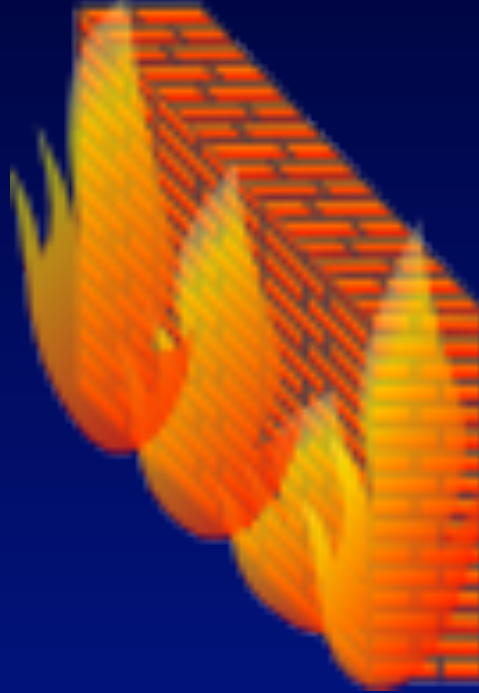
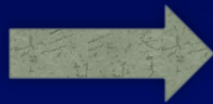
# Potential Techniques for Determining If and When Sprays are Necessary to Control the Summer Generation of OBLR



- Develop a male pheromone trap catch treatment threshold
- Monitor larval populations on growing foliar terminals
- Sample OBLR damage on fruit, and develop a treatment threshold

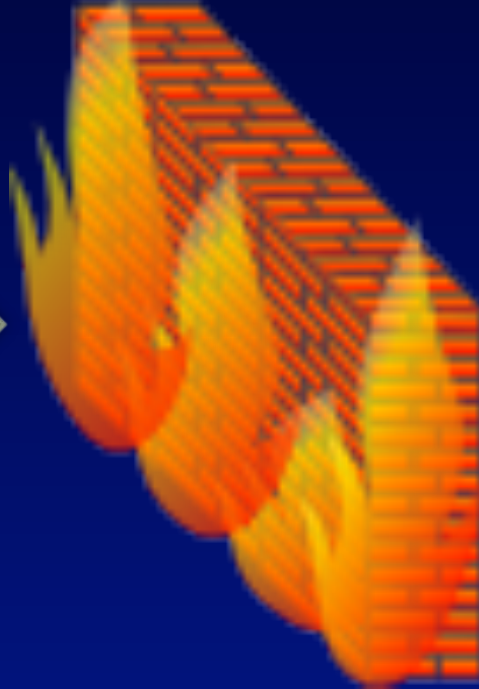
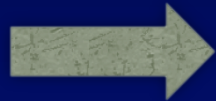


# Problems Relating Pheromone Trap Catches of Males to Fruit Damage



- Flight behavior of males vs. females
- Effects of landscape surrounding orchards on OBLR populations
- Tree training systems and planting density
- Cultivar variability
- Effect of weather on pheromone trap catches
- Effects of insecticides on male populations and behavior
- Effectiveness of pheromone traps and lures

# Problems Relating OBLR Larval Populations and Percentages of Infested Terminals to Fruit Damage



- Relationship between % infested growing terminals, larval density in tree & fruit injury relatively poor.
- Tree size, varietal susceptibility, growth habit, etc. can affect this relationship
- Sampling growing terminals for live larvae is time consuming & difficult and it is hard to find growing terminals during the summer
- Fruit damage is really the key variable for making management decisions.

# METHODS 2011

- Tests set up in 4 plots of 5A (Chazy Orchards & Forrence Orchards, 2 plots in each orchard).
- Fruit sampled for internal Lepidoptera and OBLR damage five times between 7 July and 11 August.
- Fruit sampling window: 600-700 DD base 6°C after biofix (Sampling protocol: 300 fruits for initial sample, 100 or 500 apples thereafter)
- Control sprays recommended whenever 1 damaged fruit was found, or 15 flies were trapped per 3 AM volatile-baited sphere traps

# Actual Summer Sprays in Monitored Champlain Valley Orchards

ORCHARD	7 July	11 July	14 July	21 July	25 July	4 August	11 August	Aug 16
Forrence Eccles	AM (3)	OBLR		AM (18)		AM (19)		
Forrence Home			OBLR (2)				AM	
Chazy Hill			OBLR		AM (5)			AM (25)
Chazy Home			OBLR		AM (12)			AM (9)

3 VBS deployed in each orchard. Treatment threshold = 15 AM flies/orchard

# INSECT DAMAGE

## CHAMPLAIN VALLEY PLOTS, 2011

Average % insect damage or clean fruit at harvest

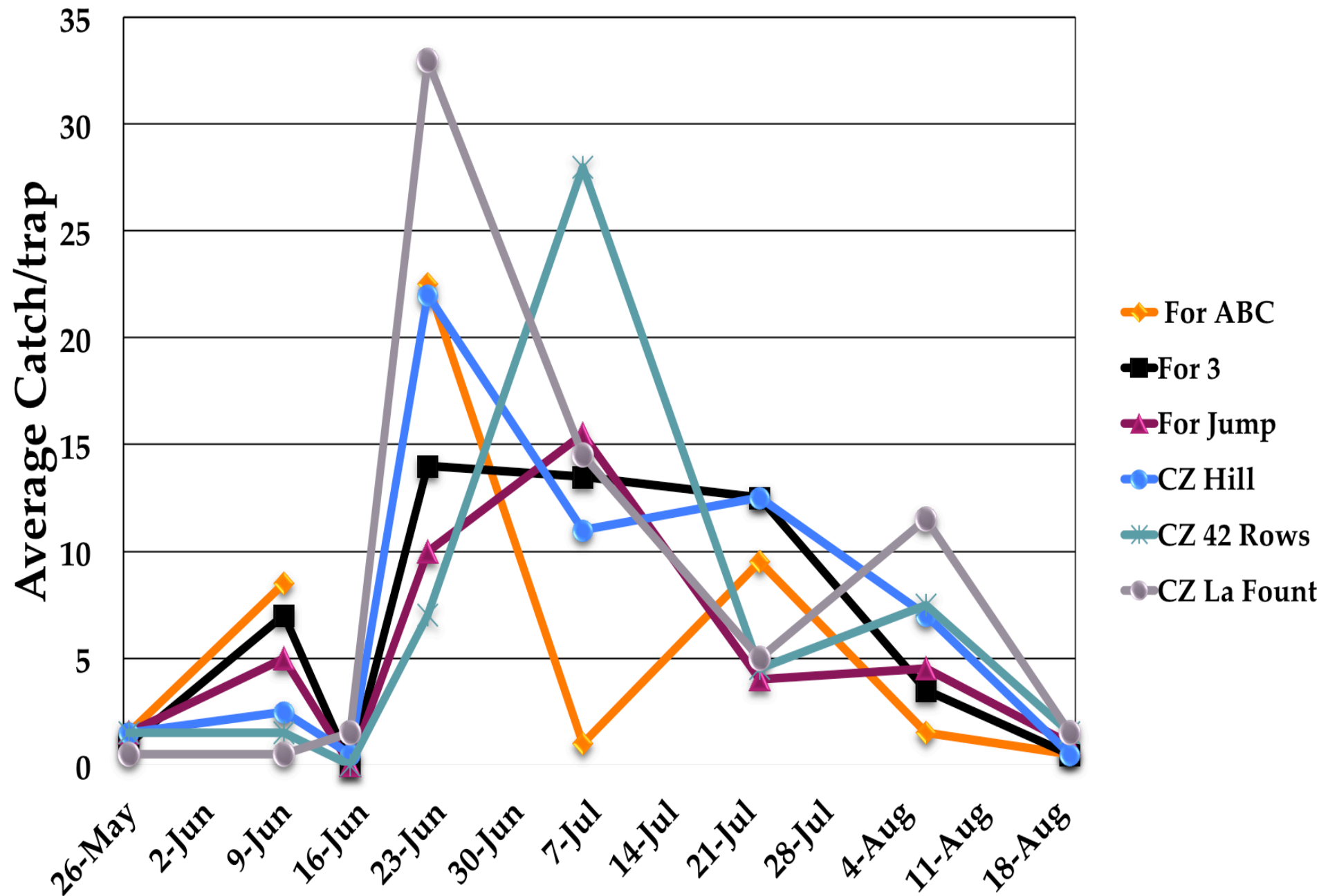
Plot	Internal Leps	OBLR Sum Gen	AM	Clean Fruit
Chazy Hill	0	1.8	0	98.2
Chazy Home	0	1.5	0	98.2
Forrence Eccles	0	0.3	0	97.6
Forrence Home	0	3.2	0	93.5



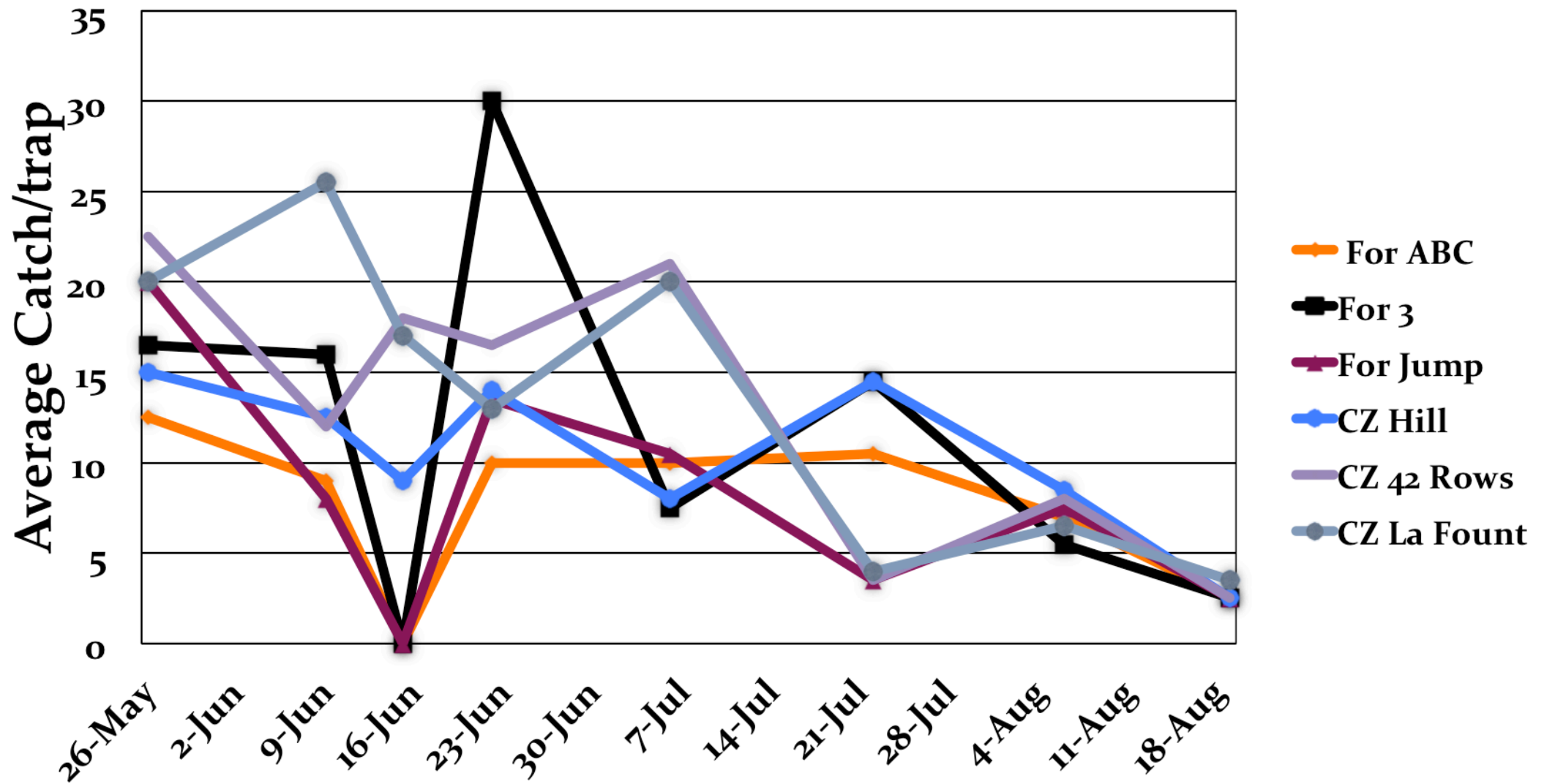
# METHODS 2012

- Tests set up in 6 plots of 5A (Chazy Orchards & Forrence Orchards, 3 plots in each orchard)
- Fruit (500 apples) sampled for internal Lepidoptera and OBLR damage on 29 June, 3 July & 6 July
- Control sprays recommended whenever 1 damaged fruit was found or 15 flies were trapped per 3 AM volatile-baited sphere traps

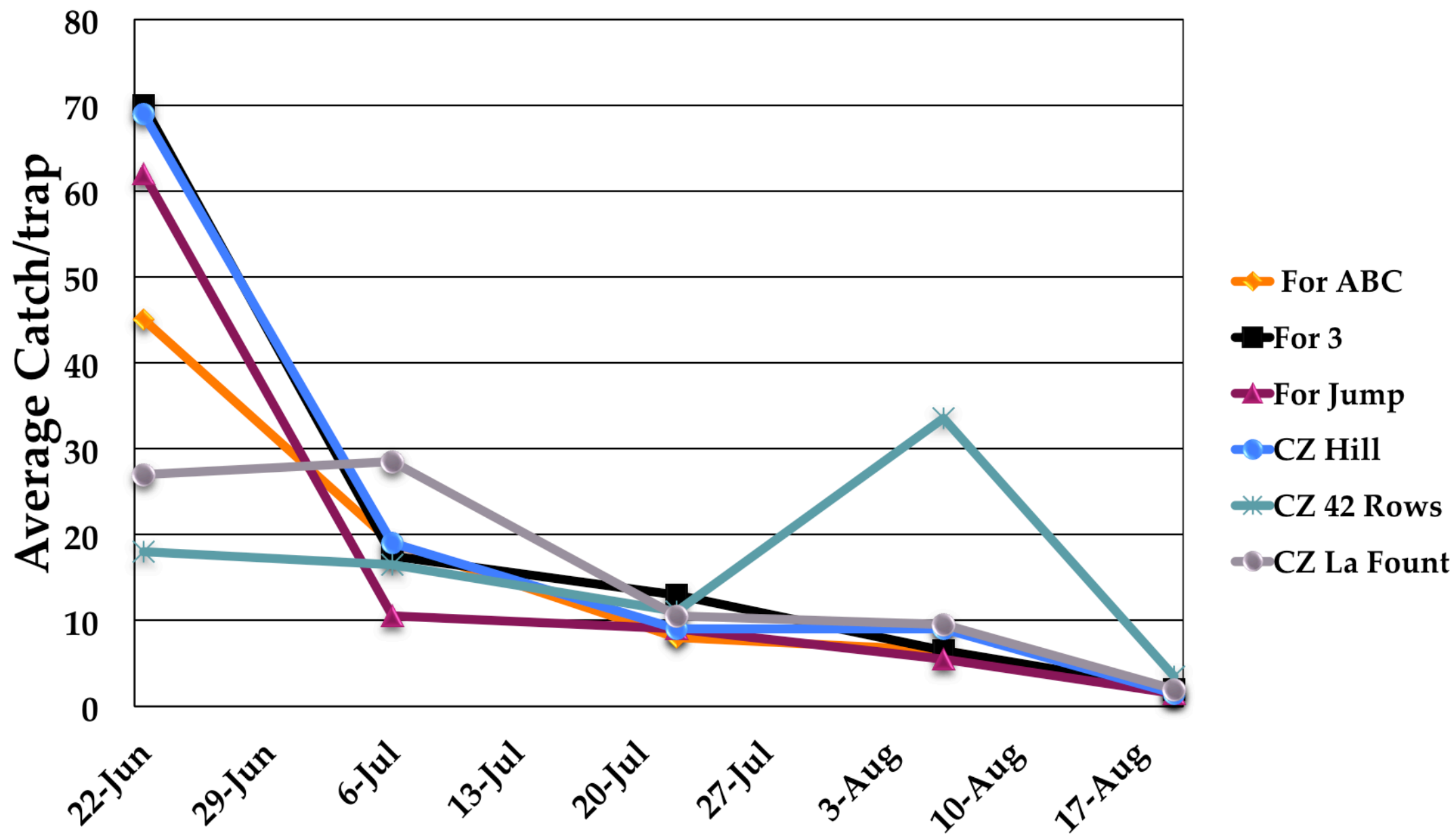
# CM CATCHES IN THE CHAMPLAIN VALLEY, 2012



# LAW CATCHES IN THE CHAMPLAIN VALLEY , 2012



# OBLR CATCHES IN THE CHAMPLAIN VALLEY, 2012





# SEASONAL OBLR SAMPLING & SPRAY RECOMMENDATIONS IN CV ORCHARDS, 2012

ORCHARD	OBLR Damaged fruit/500 fruit sample Threshold = 1 damaged apple		
	June 29	July 3	July 6
Forrence ABC	2	-	2
Forrence Block 3	4	-	3
Forrence Jump	0	0	0
Chazy Hill	0	0	0
Chazy 42 rows	0	0	0
Chazy LaFountain	0	0	0

# Seasonal Apple Maggot Catches & Spray Recommendations in Champlain Valley Orchards, 2012

ORCHARD	July 22	6 August	19 August
Forrence ABC	37	22	7
Forrence-Block 3	25	25	25
Forrence Jump	10	10	10
Chazy Hill	8	8	8
Chazy 42 rows	43	43	43
Chazy LaFountain	9	9	9

3 VBS deployed in each orchard. Treatment threshold = 15 AM flies/orchard

# Insect Damage in Champlain Valley Plots 2012

Average Percentage insect damage or clean fruit at harvest

Plot	Internal Leps	OBLR Summer Gen	AM	Clean Fruit
Chazy Hill	0	1.1	0	94.7
Chazy 42 row	0	0.3	1	97.3
Chazy LaF	0	0	0.1	95.6
Forrence abc	0	1.9	0.5	89.5
Forrence Blk 3	0.1	0.5	0	97.3
Forrence Jump	0	0.3	0	99.7

# CONCLUSIONS

- Fruit sampling plan for OBLR and internal Lepidoptera works for determining the need and timing for sprays.
- Growers following this protocol could greatly reduce the numbers of summer sprays applied against OBLR, internal Lepidoptera and apple maggots.
- So far, most NY growers are too risk-averse to adopt this technology.



# THANKS TO:

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