

Crop Insurance and Processing Vegetables: Farmer Practices and Net Returns

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Central WI Processing Crops Meeting

Hancock, WI March 14, 2007,

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Goal Today

- Use easily available USDA-RMA data for processing crops to examine
 - Farmer Practices with crop insurance
 - Performance in terms of Net Returns
- Make basic recommendations regarding using crop insurance for processing corps

Crop Insurance in WI

- USDA's Risk Management Agency (RMA) manages federal crop insurance program
- RMA "endorses" policies: makes subsidies available for companies and farmers
- Without RMA endorsement/subsidy, few crop insurance policies would be available
- Every company sells the same federal crop insurance policies for the same price
- What crops are insurable in WI?

Crop	Policy	Crop	Policy
Apples	GYC	Green Peas	GYC
Barley	APH	Potatoes	GYC
Cabbage	GYC	Snap Beans	GYC
Cranberries	APH	Sweet Corn	APH, GRP, GRIP
Corn	APH, CRC, GRP, GRIP	Hybrid Seed Corn	GRP, GRIP, Dollar Plan
Nursery	Dollar Plan	Oats	APH
Dry Beans	APH	Mint	APH
Forage Production	APH, GRP	Soybeans	APH, CRC, GRP, GRIP
Forage Seeding	Dollar Plan	Tobacco	Guaranteed Production
Sorghum	APH, CRC	Wheat	APH CRC

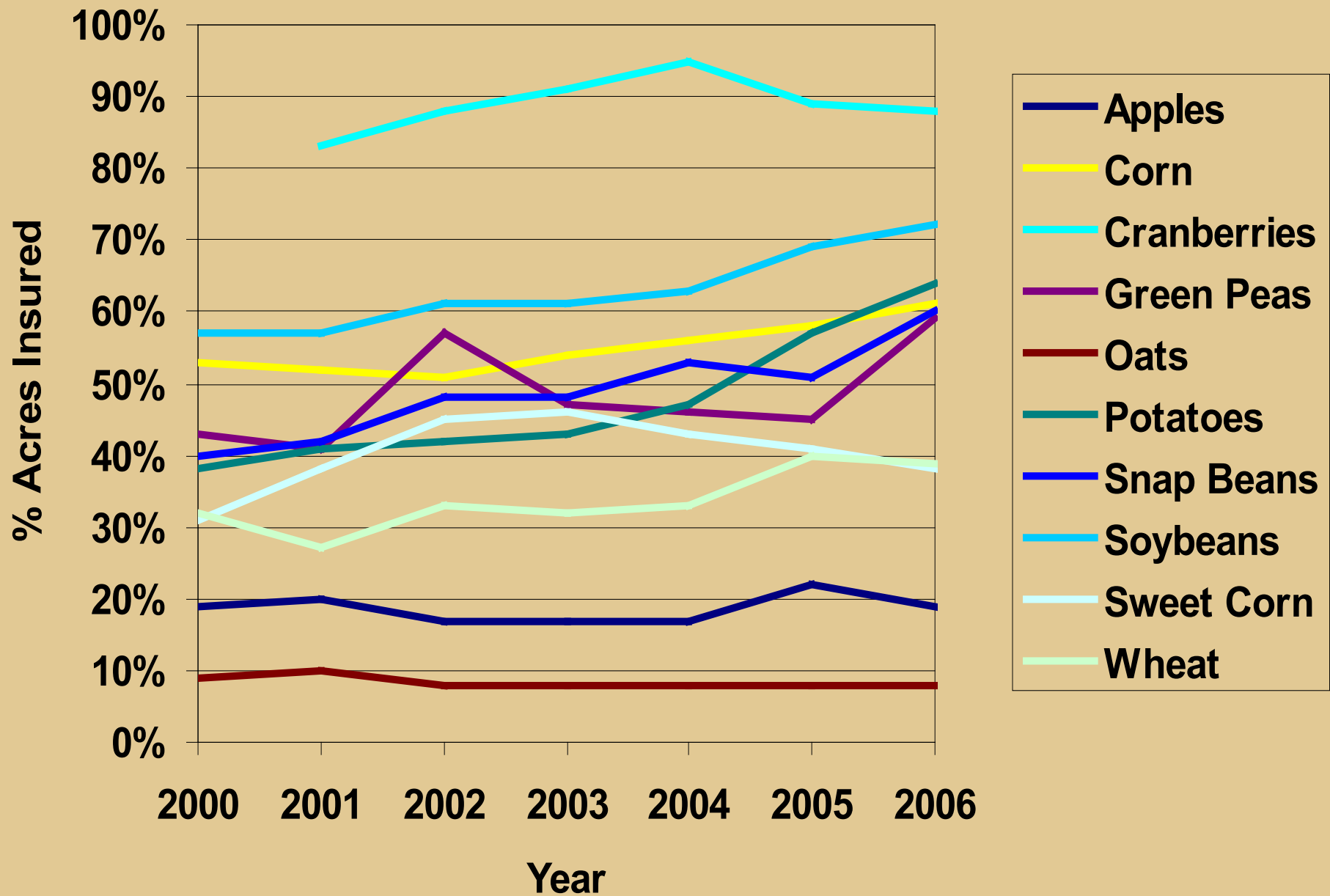
How GYC Crop Insurance Works

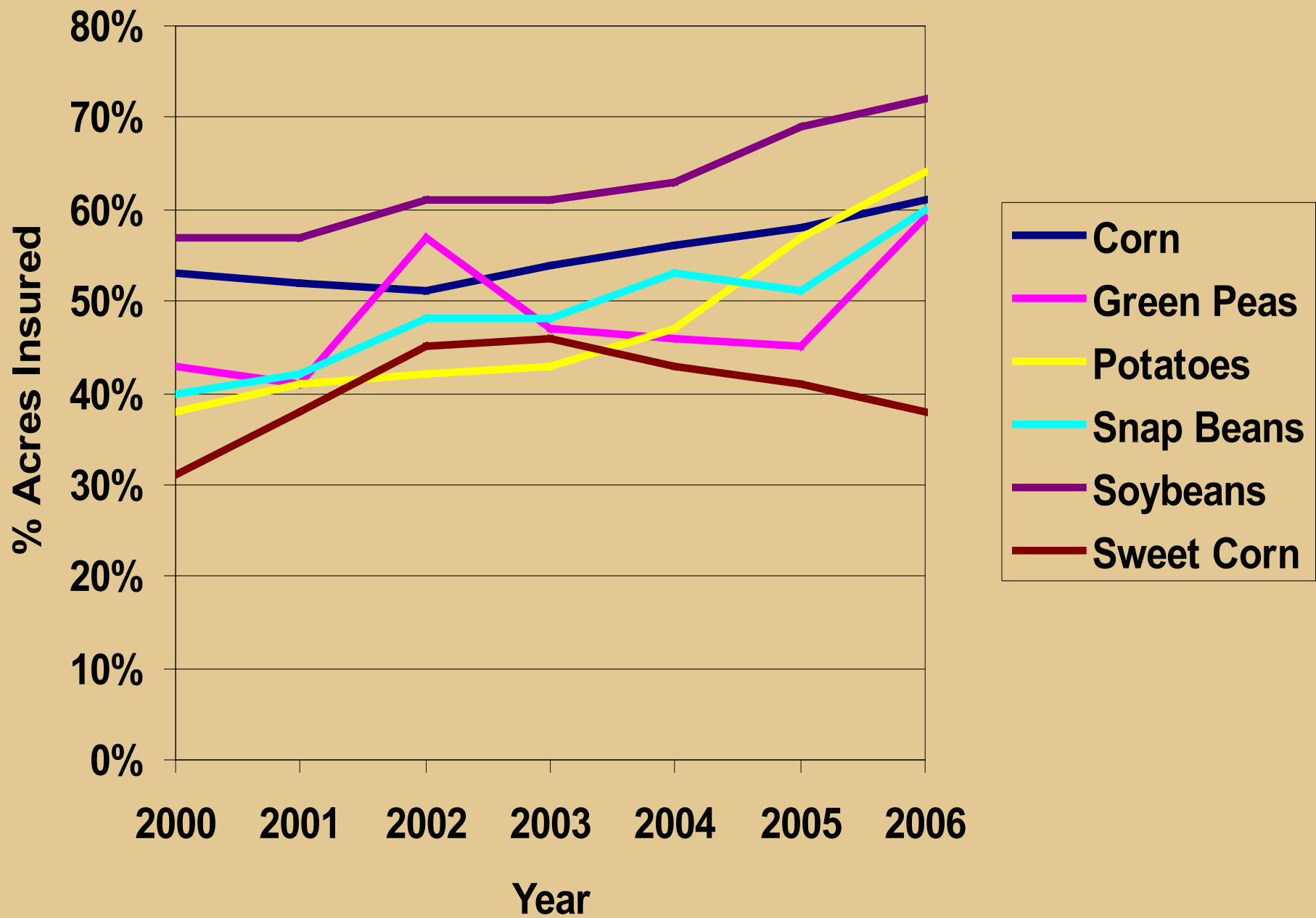
- GYC (Grower Yield Coverage) = basically same as APH, but for vegetable crops
- Choose % of your average yield (based on your yield history) as your guarantee
- If your harvested yield falls below your guarantee, trigger a payment
- Many Rules: varieties, planting dates, unit structure, double cropping, etc.
- Not covered today

GYC/APH Prices this year

- Corn APH: \$3.50/bu
- Soybeans APH: \$7.00/bu
- Sweet Corn APH: \$60.00/ton
- Potatoes GYC: \$5.95/cwt
- Snap Beans GYC: \$85.00
- Green Peas GYC: Contract Price

- What's the Participation Rate?





Participation Rate

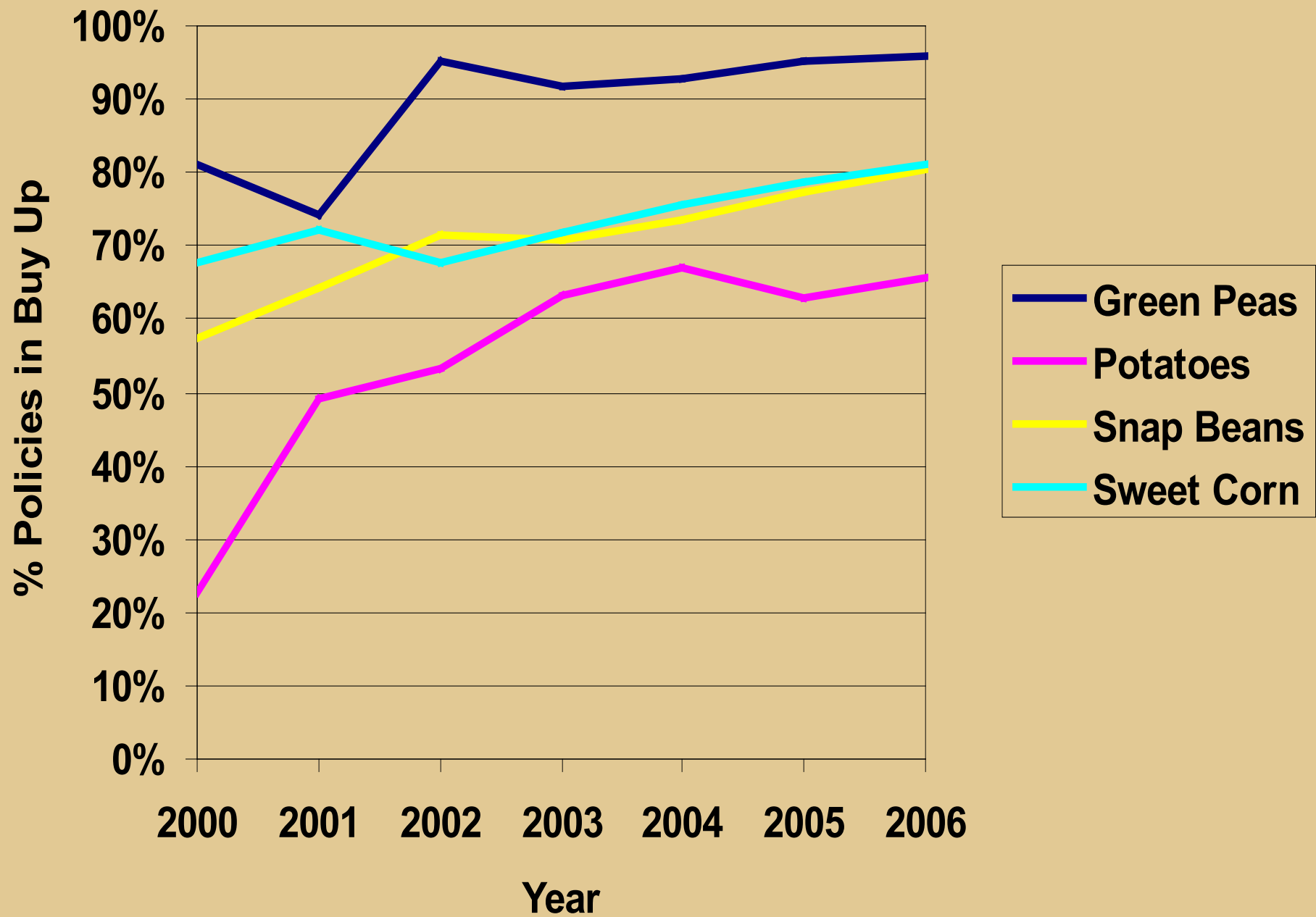
- For processing crops, general upward trend in insured acres
- Now around 60%, comparable to field corn
- Exception: sweet corn much flatter, lags general trend: 40-50% participation
- Main Point: Lots of farmers are buying insurance for their processing crops, and more and more are doing so
- How are they using it? (their practices=?)
- How does it affect their Net Returns?

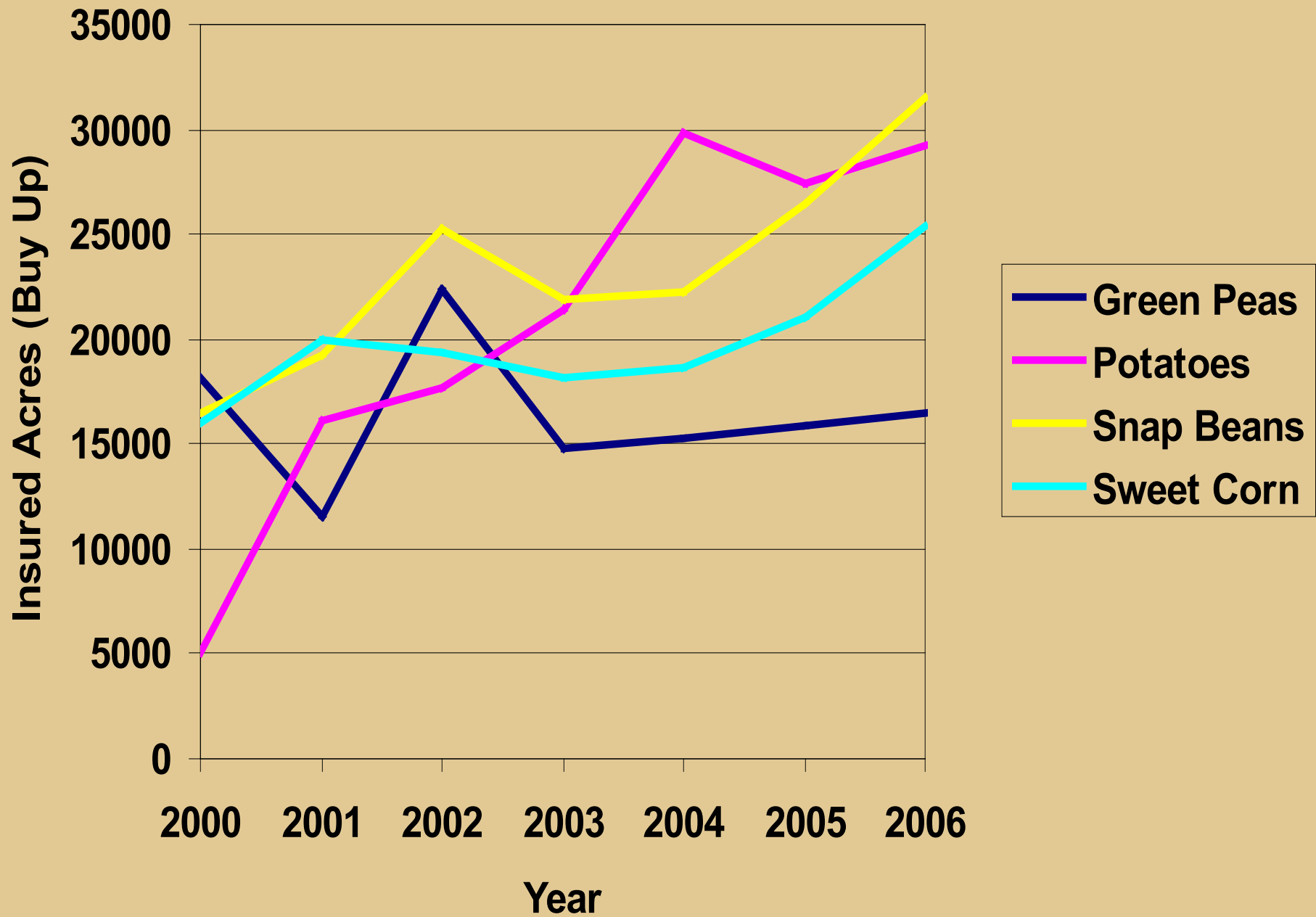
RMA Data

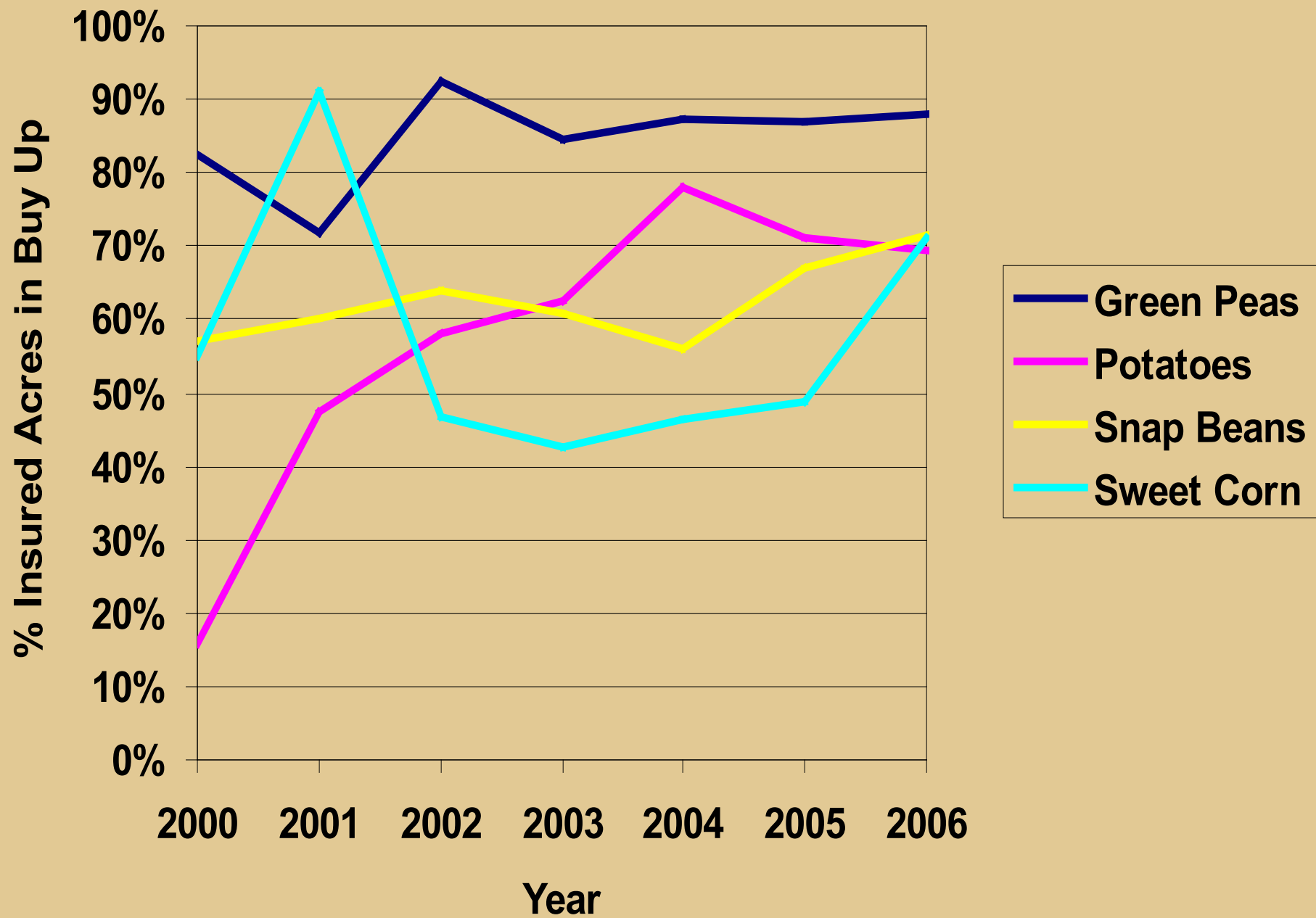
- “Summary of Business” on line summary of each insurance program/policy by crop and state for each year
- Policies sold, acres, units, liabilities, total premium, subsidy, indemnities, loss ratio
- Use these data for 2000-2006 (7 years) to describe insurance practices and experience

Cat vs. Buy Up Coverage

- RMA sells Catastrophic (Cat) coverage for \$100/crop/county (Basically Free!)
- Yield guarantee is 50% of your average, price is 55% of max price election
- Buy Up: higher % of average yield (50%-75%, even up to 85%) and higher price election (up to 100% of max)
- Buy Up more popular, more expensive
- Cat very cheap, less popular







Average Buy Up over 2000-2006

Crop	Acres	% Acres	% Policies
Green Peas	16,350	85%	89%
Potatoes	20,958	57%	55%
Snap Beans	23,302	62%	71%
Sweet Corn	19,796	57%	74%

Buy Up Coverage in 2006

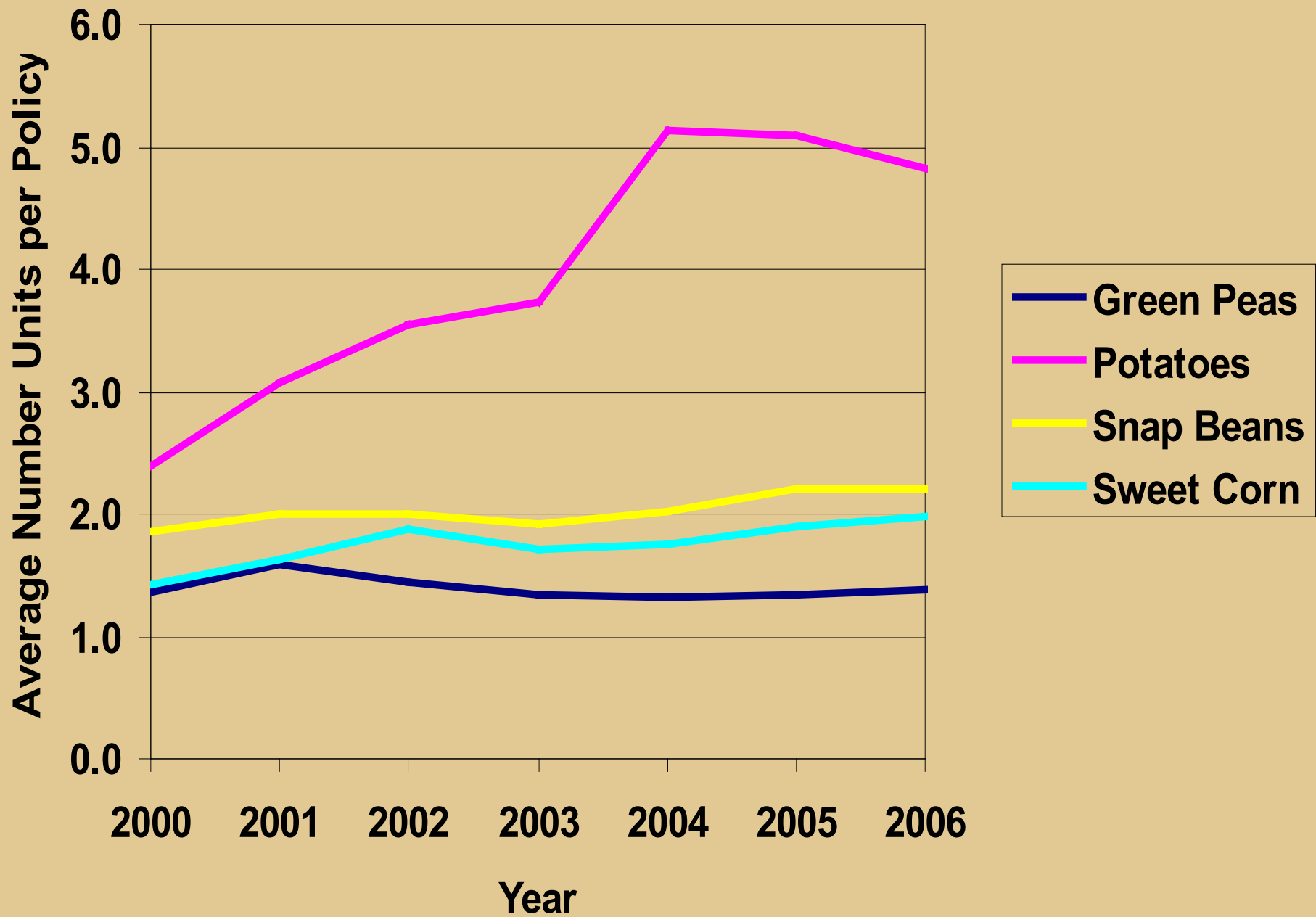
Crop	Acres	% Acres	% Policies
Green Peas	16,453	88%	96%
Potatoes	29,184	69%	66%
Snap Beans	31,515	71%	80%
Sweet Corn	25,435	71%	81%

Summary Buy Up vs. Cat

- Most farmers use Buy Up coverage
- Use of Buy Up coverage is increasing
- % Acres vs % Policies shows more smaller farmers use Buy Up, but not by much
 - Exception: Potatoes is reverse
- Green Peas almost all Buy up
 - 96% policies in 2006
- Potatoes lowest use of Buy Up
 - 66% policies in 2006

Unit Structure

- Must define the insured unit of land
- Yield guarantee is at the unit level
- Yield from the whole unit must fall below your guarantee to trigger an indemnity
- Basic Unit: all acres of crop in one unit
- Optional Unit: break basic unit into smaller fields, following RMA rules
- **Use as many Optional Units as possible**



Unit Structure Summary

- Most farmers using **Optional Units**
- Unit Structure fairly constant last 7 years, slight upward trend
- Exception: Potatoes went from 2 to 5 units per policy

Crop	Average # Units/Policy
Green Peas	1.40
Potatoes	3.97
Snap Beans	2.03
Sweet Corn	1.76

Summary of Farmer Practices

- Most farmers use crop insurance for their processing vegetables and more are doing so
- Most use Buy Up coverage or are switching from Cat to Buy Up coverage
- Many farmers use Optional Units, especially for potatoes (snap beans to some extent)
- Most farmers keeping constant unit structure (not switching), except for potatoes
- Practices for potatoes are in transition

Double Cropping

- RMA has a standing policy not to insure second crop in a double crop rotation
- Corn planted following an early hay cutting is not insurable
- Soybeans following early peas or snap beans are not insurable
- Does this double crop restriction limit buying crop insurance for processing crops?
- You tell me!

What about Net Returns?

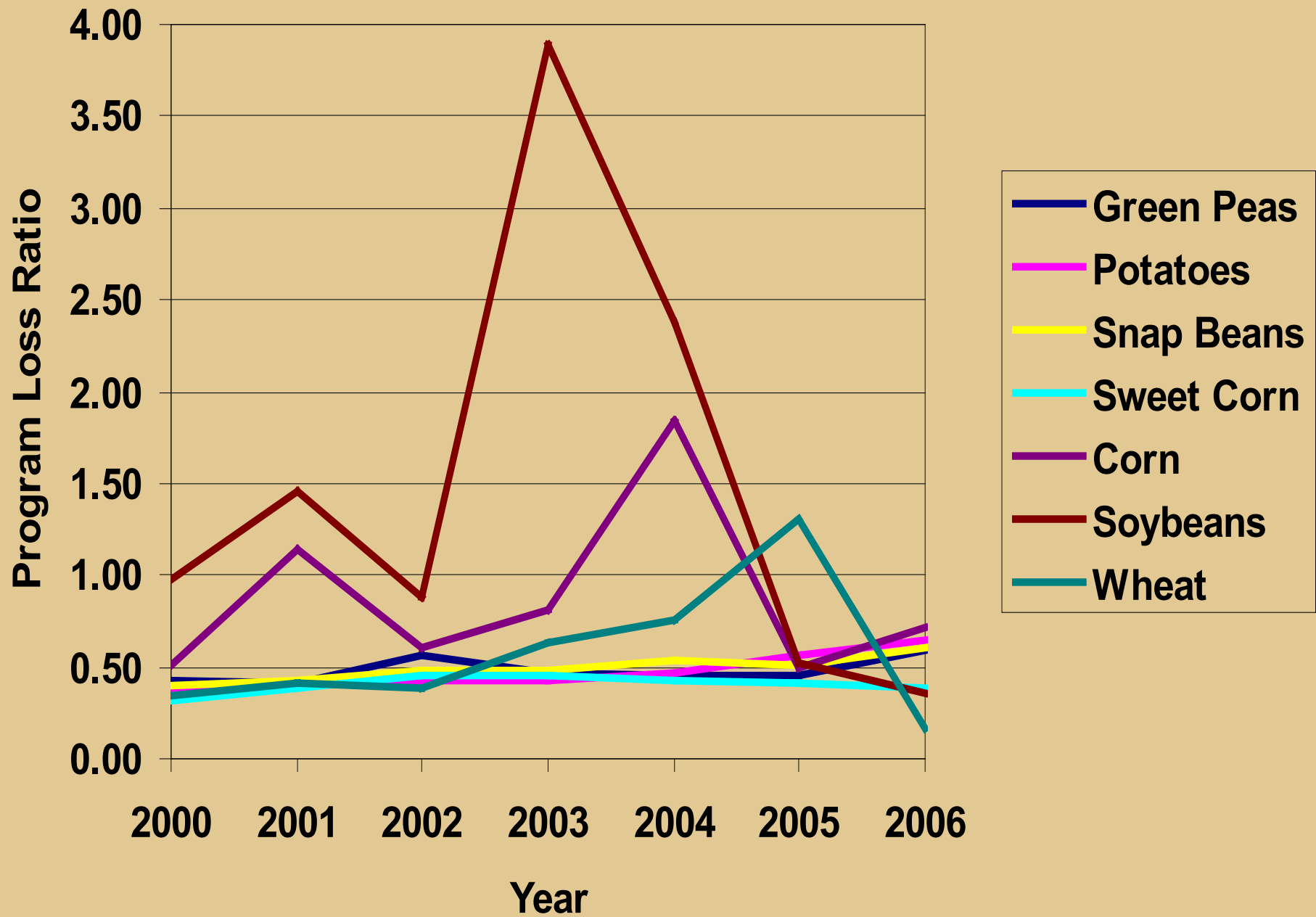
- How does crop insurance affect expected net returns?
- Examine expected net returns effects using Loss Ratios derived from RMA data
- $\text{Loss Ratio} = \text{Indemnities} / \text{Premium}$
- The issue is what premium to use: total premium or farmer portion?
- RMA cares about program loss ratio, farmers care about farmer loss ratio

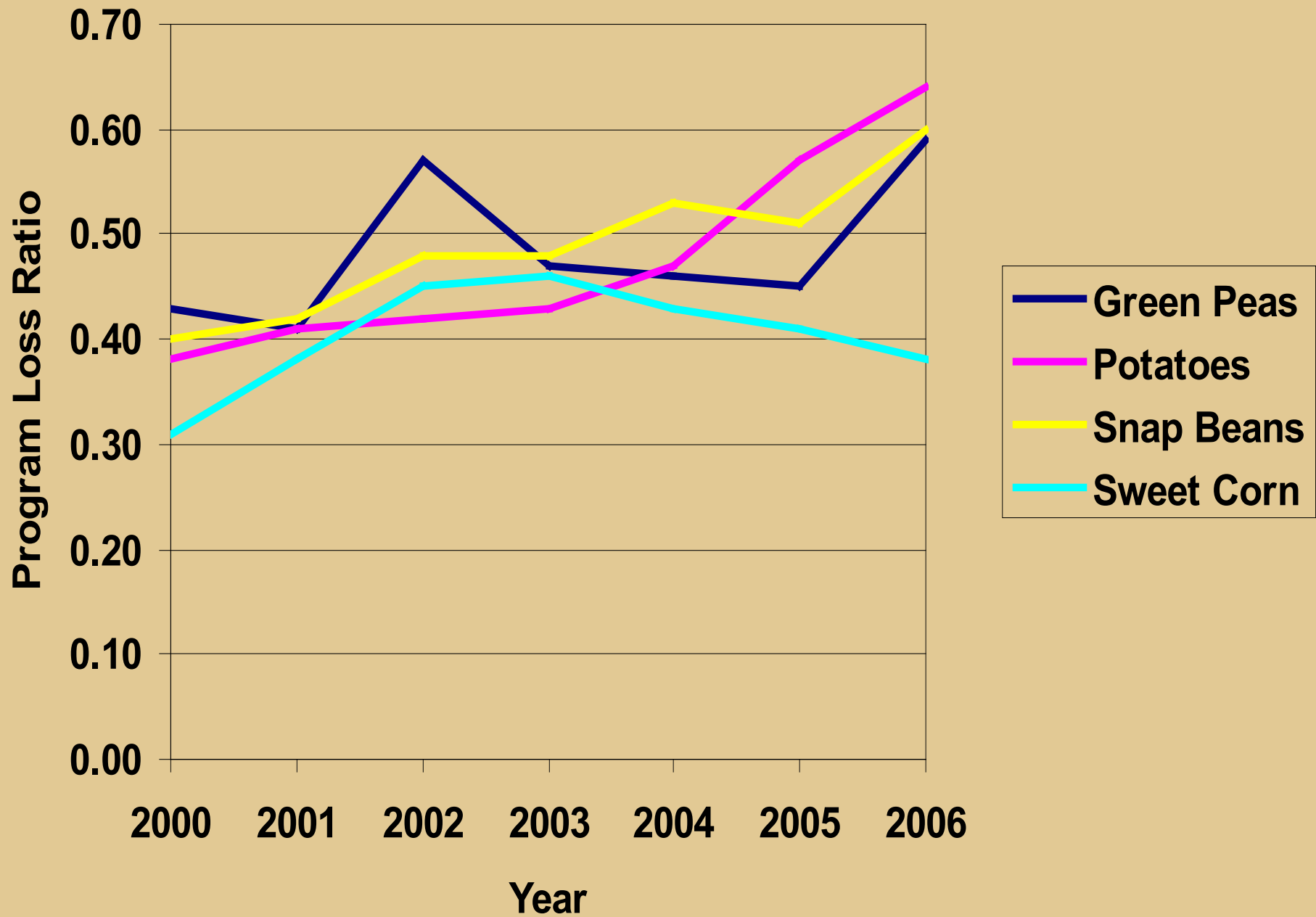
Loss Ratio

- Simple way to see how the insurance affects farmer net returns
- Do farmers on average make or lose money with the crops insurance?
- Jumps around between years: high in bad years, low in good years
- Note: RMA subsidizes premiums and program loss ratio includes that subsidy as part of the total premium collected

Program Loss Ratio

- Loss Ratio = Indemnities/Total Premium
- Loss Ratio > 1 means paid more indemnities than premiums received (program on average losing money)
- Loss Ratio < 1 means received more premiums than indemnities paid (program on average making money)
- RMA goal to get a long term program loss ratio that is around 1.0



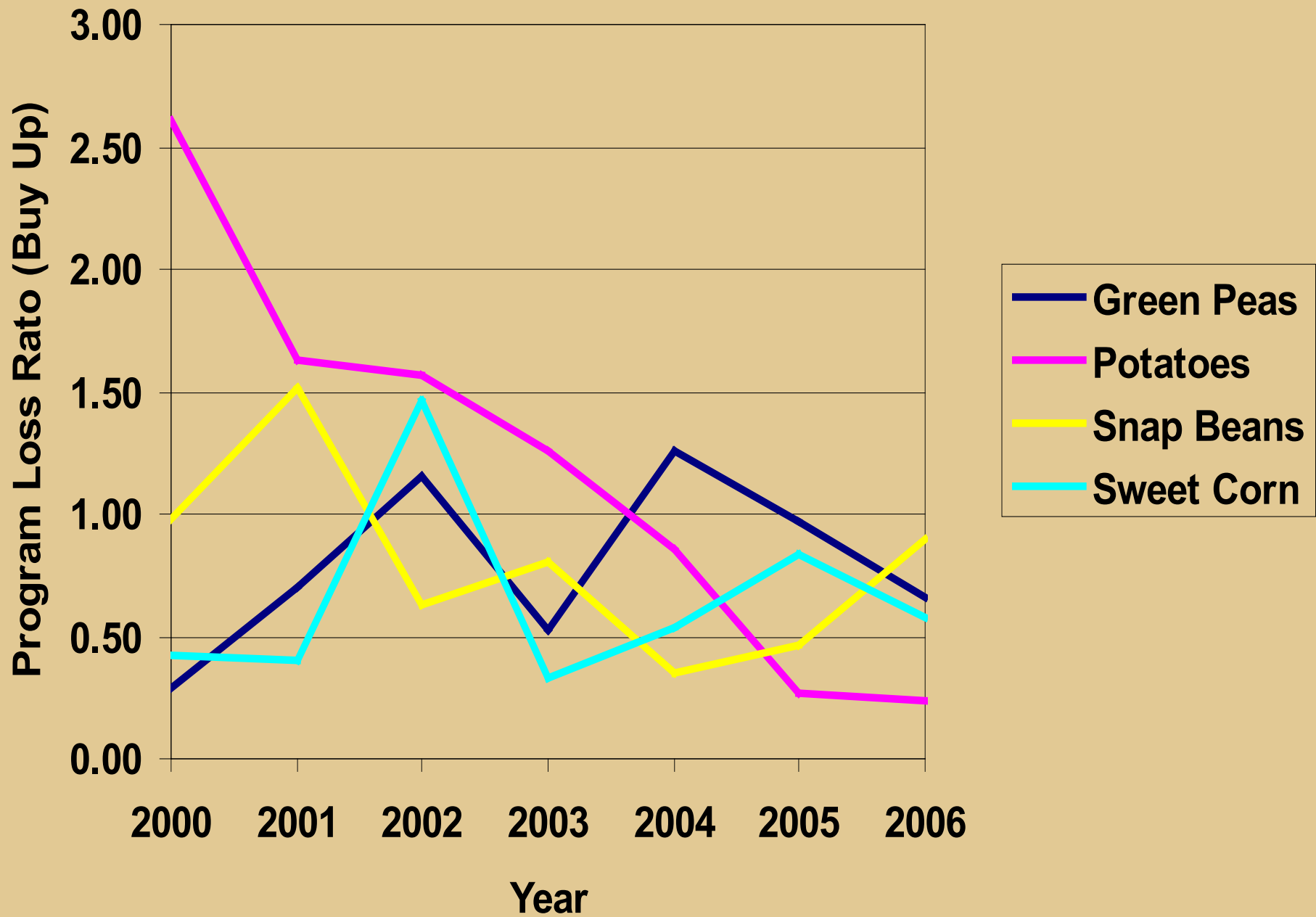


Average Program Loss Ratios

Crop	Average Loss Ratio
Green Peas	0.48
Potatoes	0.47
Snap Beans	0.49
Sweet Corn	0.40
Corn	0.87
Soybeans	1.49
Wheat	0.57

Program Loss Ratio Summary

- Over the last 7 years
- Grain crops had higher loss ratios than processing vegetables (closer to 1.0)
- Processing Vegetables
 - On average, about twice as much total premium collected as indemnities paid
 - Upward trend (it's getting better)
- RMA has room for improvement to get 1.0



Buy Up Program Loss Ratios

- Higher on average than total program loss ratio (better for farmers)
 - RMA has internal premiums for Cat too low
 - RMA has better (relatively lower) premiums for higher coverage levels
- Flat trend for Green Peas, Snap Beans, and Sweet Corn (0.65-0.81)
- What's going on with Potatoes?
 - String of better and better years?
 - Farmers with better land buying insurance?
 - Premiums increasing?

Farmer Loss Ratio

- Farmers do not pay all the premium
- Farmer Loss Ratio =
$$\text{Indemnities} / \underline{\text{Farmer Premiums}}$$
- Loss Ratio > 1 means farmers paid more indemnities than premiums received (farmers on average making money)
- Loss Ratio < 1 means farmers received more premiums than indemnities paid (farmers on average losing money)
- Buy Up only, no farmer premium for Cat



Average Farmer Loss Ratio (Buy Up)

Crop	Average Loss Ratio
Green Peas	1.70
Potatoes	2.72
Snap Beans	1.81
Sweet Corn	1.53

Summary Farmer Loss Ratio

- On average across WI over the last 7 years, farmers made money with crop insurance for processing vegetables with buy up coverage
- For every \$1 paid in premium, they received \$1.53 to \$1.81 in indemnities
 - Explains increased participation rates
- What's going on with Potatoes?
 - String of better and better years?
 - Farmers with better land buying insurance?
 - Premiums increasing?

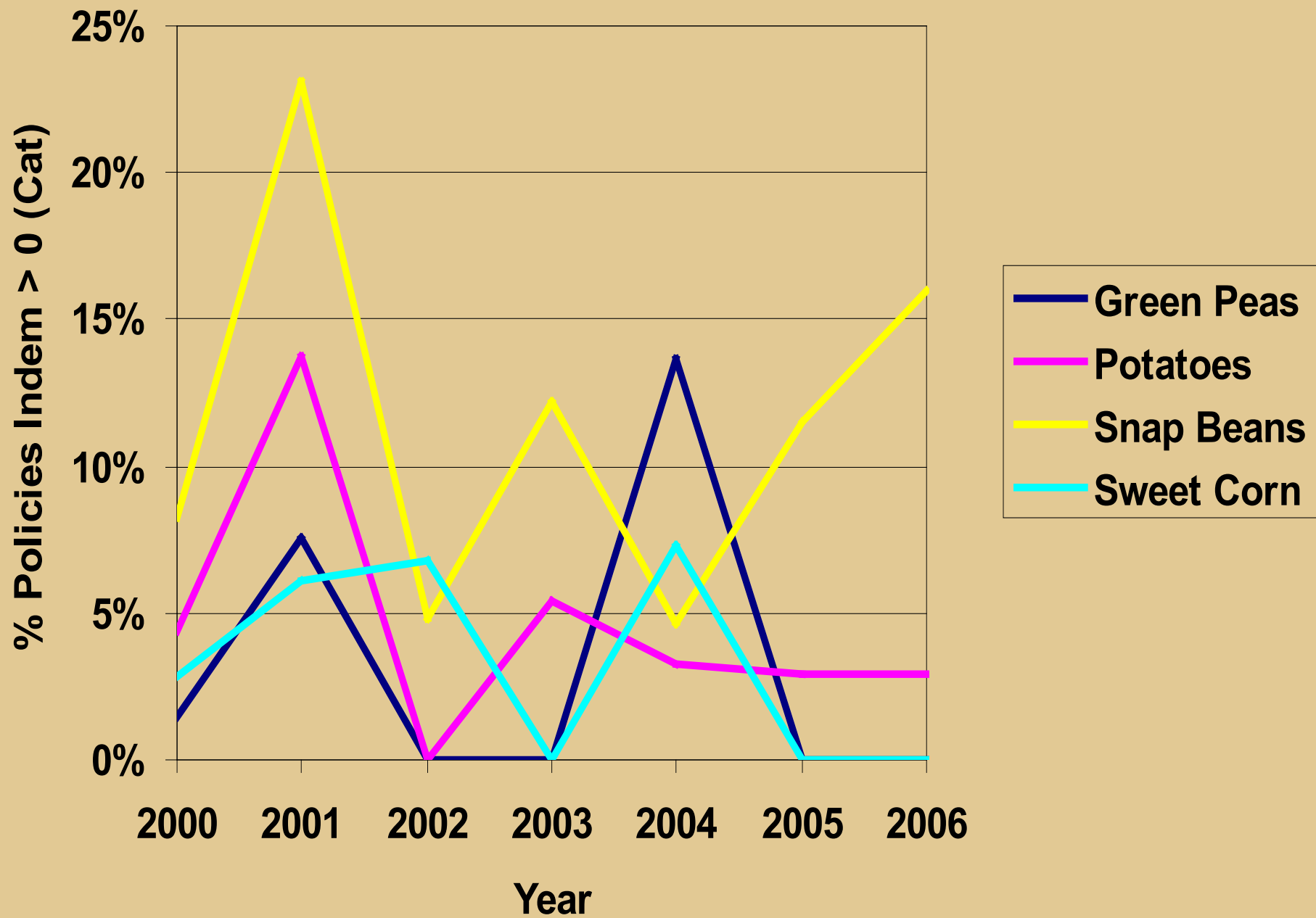
Note: It's a 7-Year State Average, Not a Guarantee

- This loss ratio analysis is the average for all policies in Wisconsin by crop
- Some years it will be higher, some years lower, this the 7-year average
- Some counties have low loss ratios and some counties have high loss ratios
- Data by county exist, but it's a big file
- Some farmers have low loss ratios, some have high ones—each farmer is different

Probability of Receiving Indemnities

- Can use the RMA data to find out how many policies and how many units received indemnities
- Rough empirical estimate of the probability of receiving an indemnity
- Can examine by Buy Up vs. Cat coverage
- Again, it will be a state wide estimate





Probability Pay Indemnity

Crop	% Policies Pay	
	Buy Up	Cat
Green Peas	27%	3%
Potatoes	37%	5%
Snap Beans	33%	11%
Sweet Corn	18%	3%

Summary of Probabilities

- No real trend for crops
 - Potato buy up has a downward trend
- Cat policies rarely pay: 3-5% (< 1 in 20)
 - Snap Beans = 11% (over 1 in 10)
- Buy Up policies pay 27%-37%

Roughly range between 1 in 4 to 1 in 3

 - Sweet Corn = 18% (less than 1 in 5)

Summary of Net Returns Effects

- Program loss ratios too low in WI for processing crops (premiums too high)
 - Only 7 years, will be awhile before RMA acts
- Farmer loss ratios over 1.0, so farmers on average making money with the insurance
 - For every \$1 paid in premium, they received \$1.53 to \$1.81 in indemnities
 - Potatoes are in transition or strange history
- In any given year, 20% to 35% of Buy Up policies pay, 5-10% Cat policies pay

Conclusions: GYC (APH) Crop Insurance for Vegetables

- Crop insurance, especially Buy Up coverage, likely valuable for many/most WI processing vegetable farmers
- Consider at least Cat: \$100/crop/county
- Use as many Optional units as possible
- **Insurance has risk management benefits,** not just increase average net returns, also reduces returns variability with yield floor
- March 15th final day to purchase crop insurance

Sweet Corn and GRP and GRIP

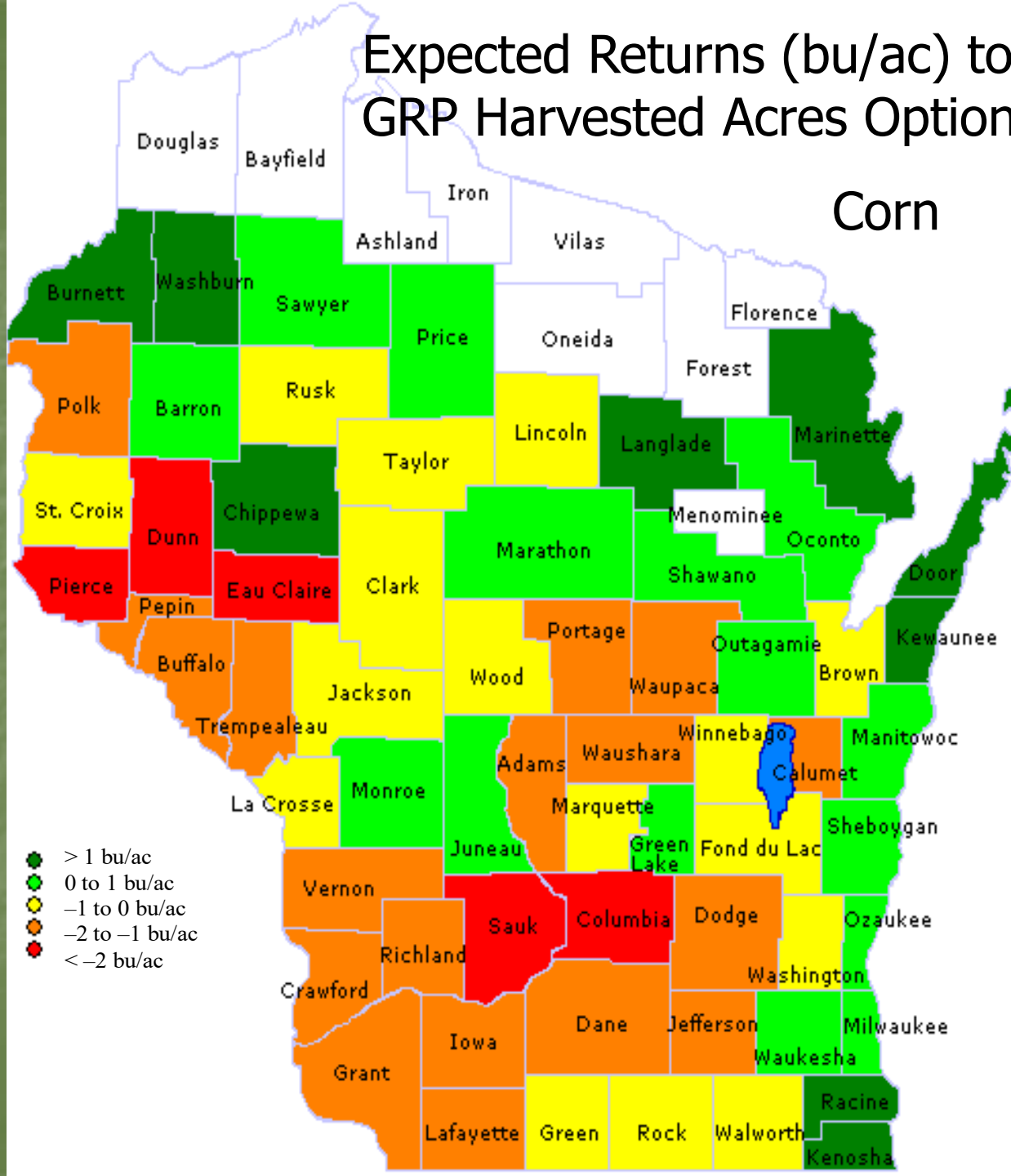
- Can buy Corn GRP and GRIP for sweet corn acres in WI
- No comparable option for other crops
 - No Soybean GRP/GRIP for green peas or snap beans
- New county by county analysis of corn GRP for WI: few hard copies, plus web www.aae.wisc.edu/mitchell/extension.htm

Is GRP a Good Deal?

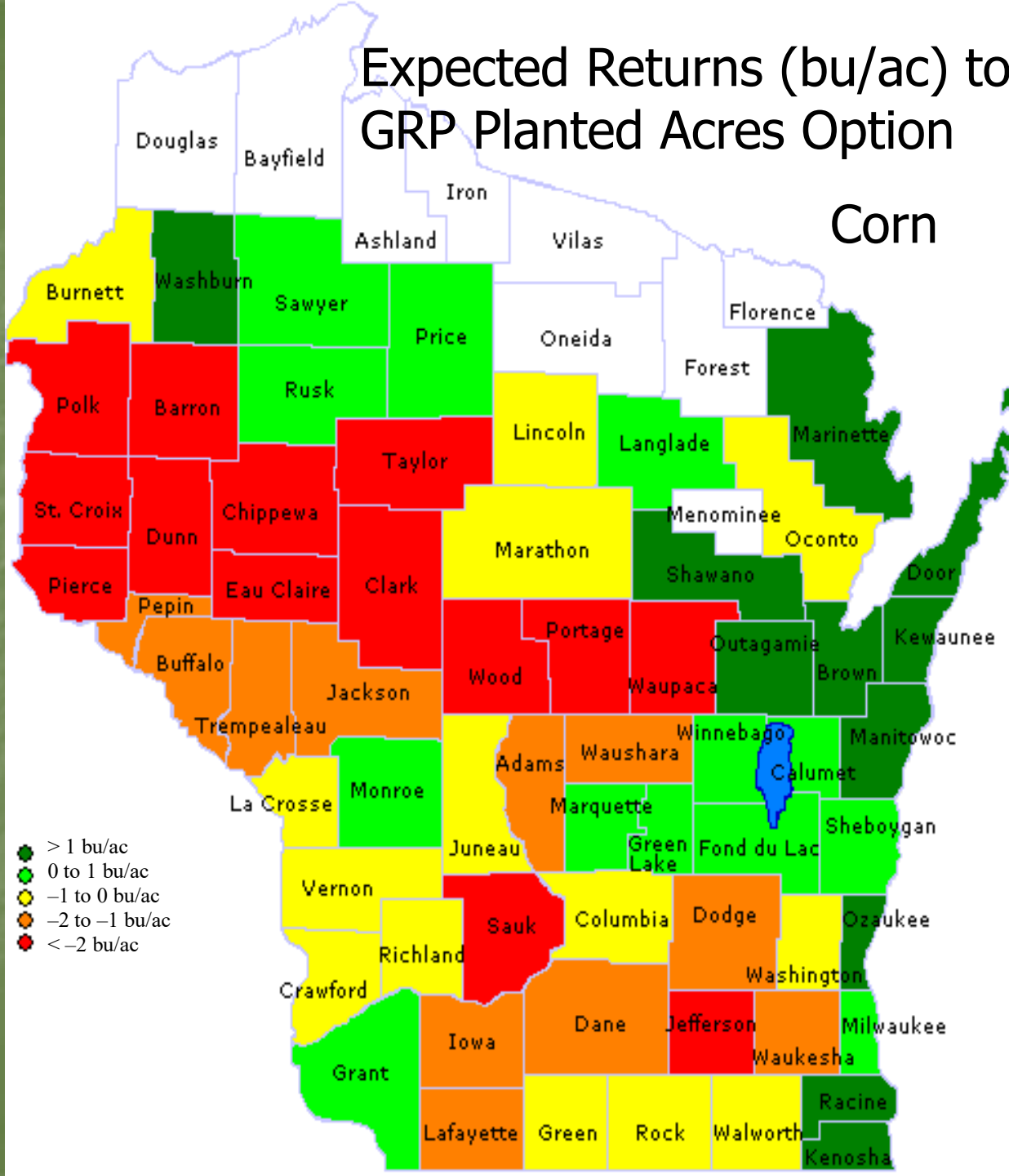
- Color maps of expected net returns as bu/ac (multiply by RMA price)
- Green is positive average net return
- Red negative average net return
- Actual bu/ac numbers on my web page
- Again, no risk management benefit included in the analysis
- Remember: March 15th final day to purchase crop insurance

Expected Returns (bu/ac) to GRP Harvested Acres Option

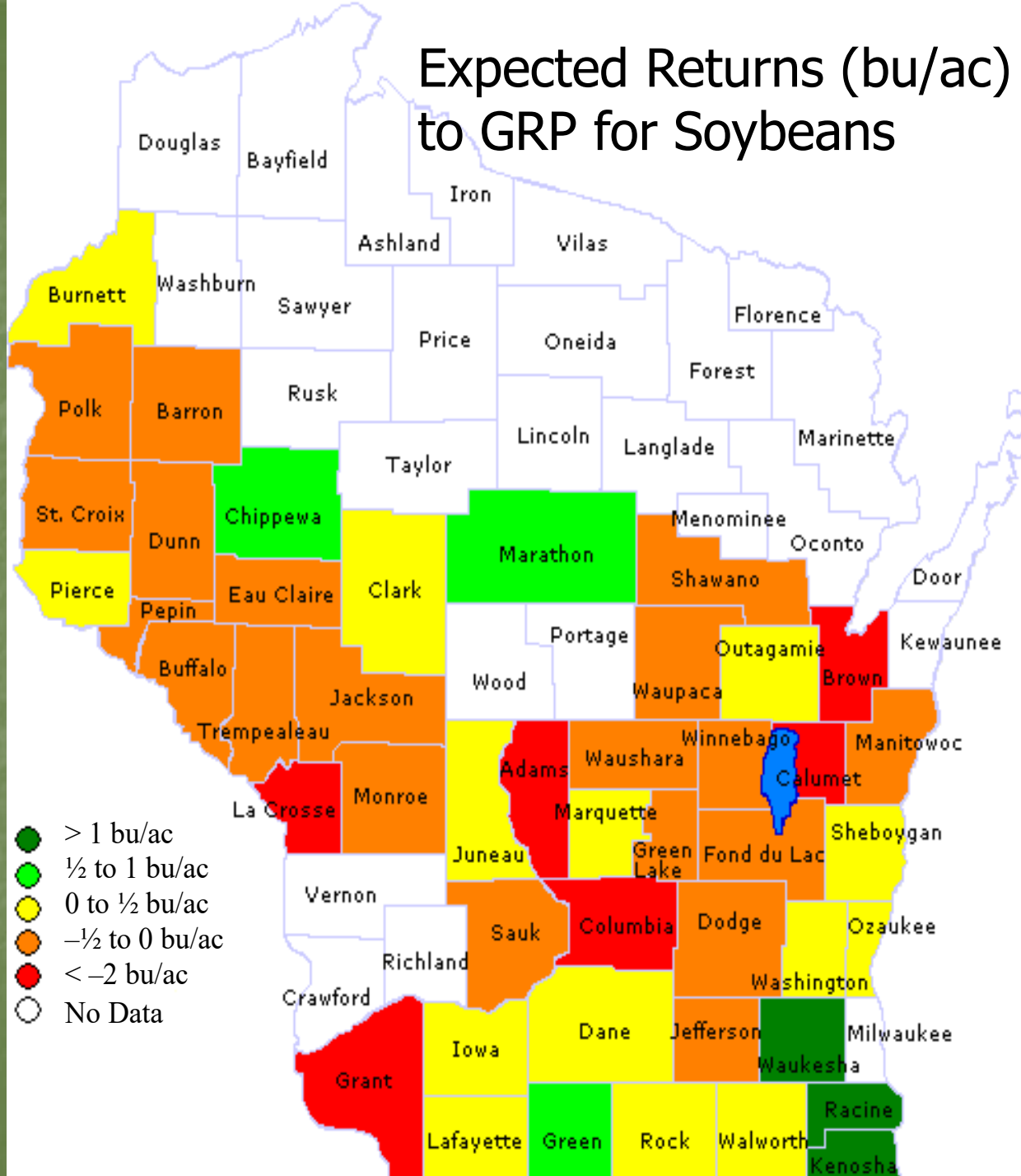
Corn



Corn



Expected Returns (bu/ac) to GRP for Soybeans



Questions?

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