

National Survey of Wheat & Barley Producers: Where Do They Get Information About Scab? How Does That Affect Adoption of Management?



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US Wheat and Barley Scab Initiative

National survey of wheat and barley producers

- **4-page questionnaire**
- **Questions:**
 - **How important is scab to producers?**
 - **Which scab management tools are being used?**
 - **What hinders use of these tools?**

In Feb.-March 2014, NASS:

- **Pulled a sample of 15,900 growers in 17 states**
- **Mailed questionnaire, phone follow-up**

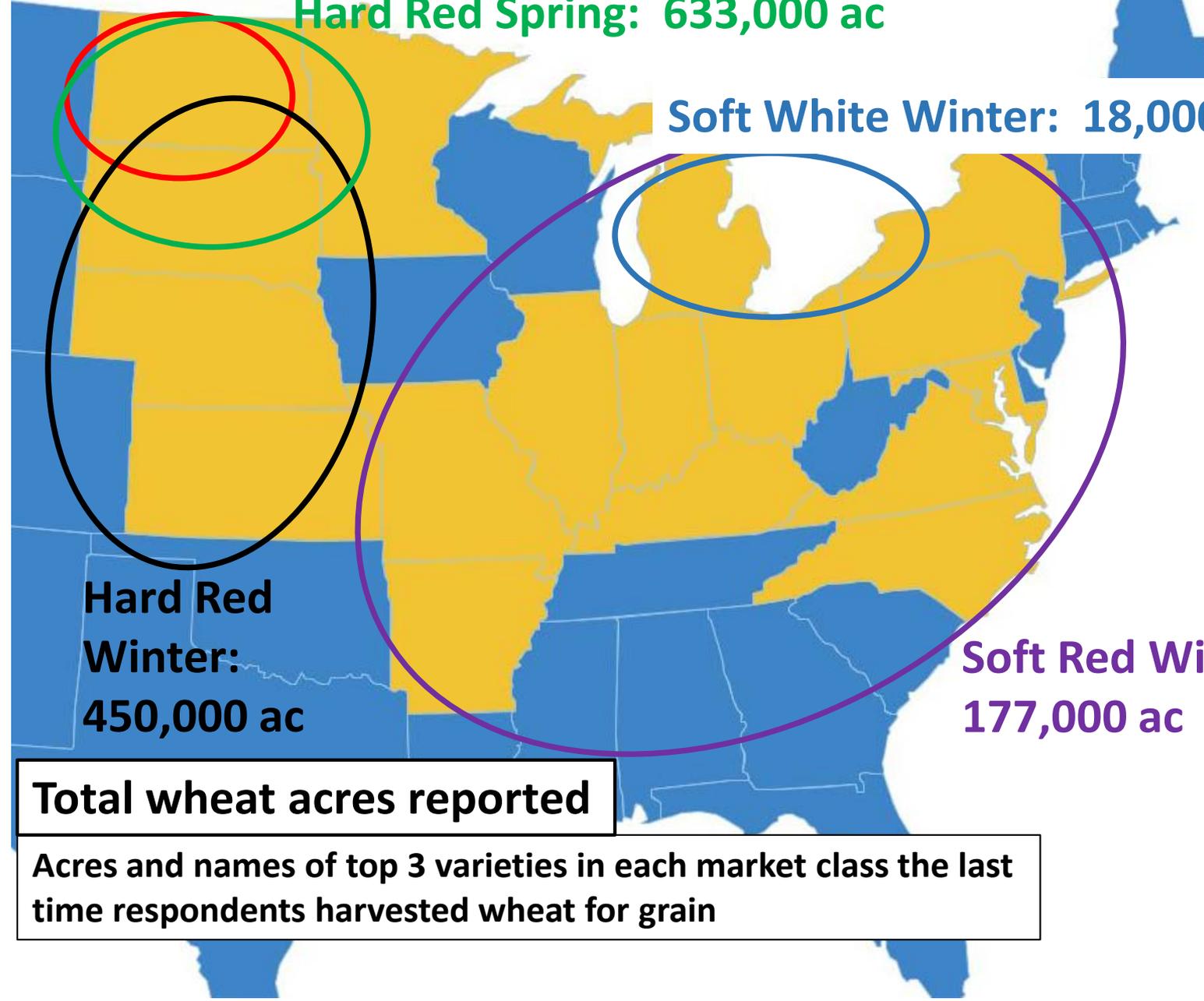


STATE	POPULATION	SAMPLE	Sample as % of pop	USEABLE REPORTS	
				Count	% of sample
Arkansas	2,495	449	18%	81	18%
Illinois	11,247	712	6%	261	37%
Indiana	7,307	617	8%	229	37%
Kansas	21,370	1,252	6%	426	34%
Kentucky	9,080	748	8%	156	21%
Maryland	2,251	673	30%	254	38%
Michigan	8,435	962	11%	407	42%
Minnesota	8,648	784	9%	266	34%
Missouri	10,487	829	8%	255	31%
Nebraska	7,760	675	9%	209	31%
New York	1,813	668	37%	178	27%
North Carolina	4,890	933	19%	226	24%
North Dakota	13,109	2,291	17%	801	35%
Ohio	16,771	941	6%	413	44%
Pennsylvania	8,834	1,106	13%	440	40%
South Dakota	7,688	1,438	19%	364	25%
Virginia	3,495	817	23%	141	17%
TOTAL	145,680	15,895	11%	5,107	32%

Durum: 100,000 ac

Hard Red Spring: 633,000 ac

Soft White Winter: 18,000 ac

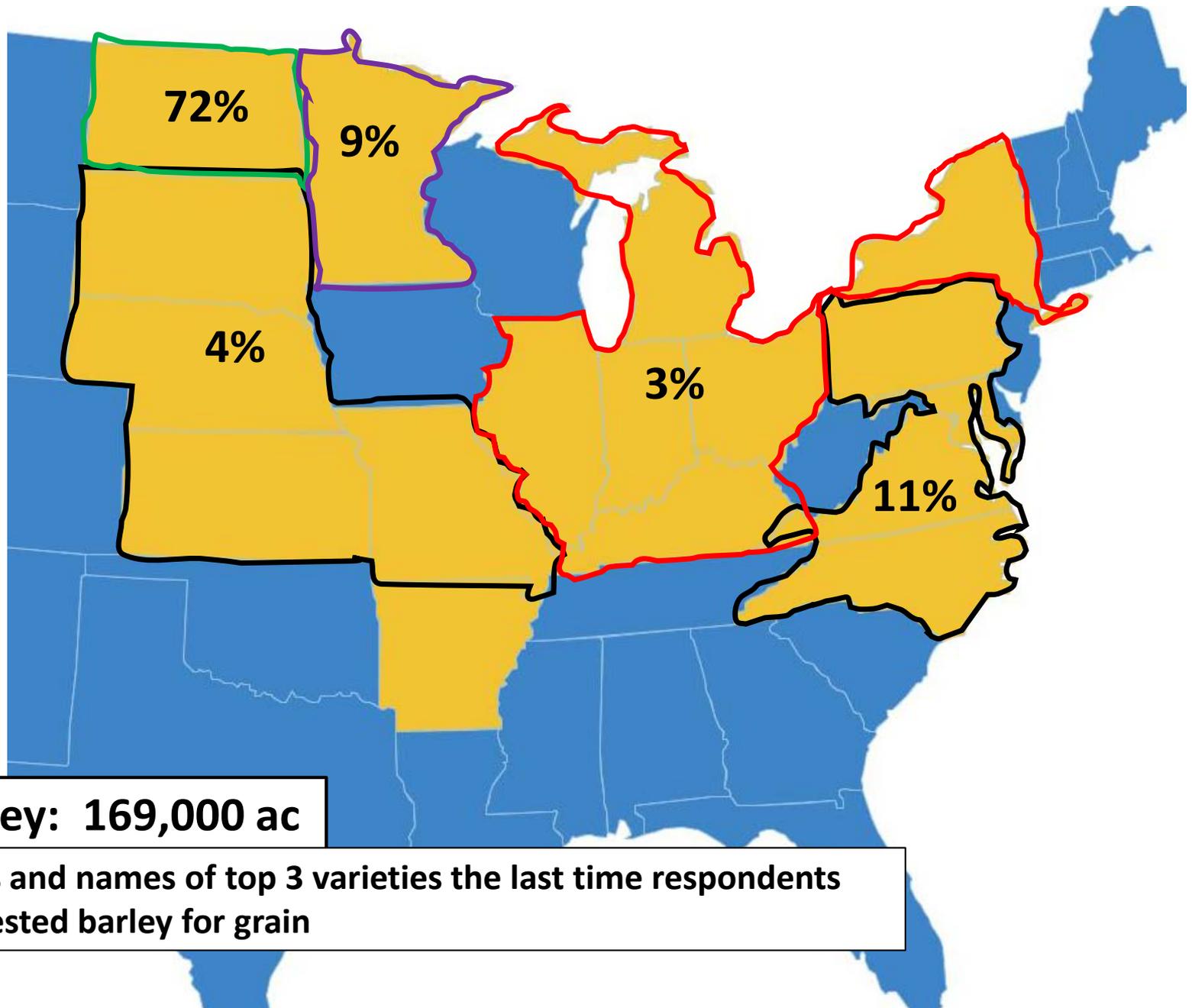


Hard Red Winter: 450,000 ac

Soft Red Winter: 177,000 ac

Total wheat acres reported

Acres and names of top 3 varieties in each market class the last time respondents harvested wheat for grain



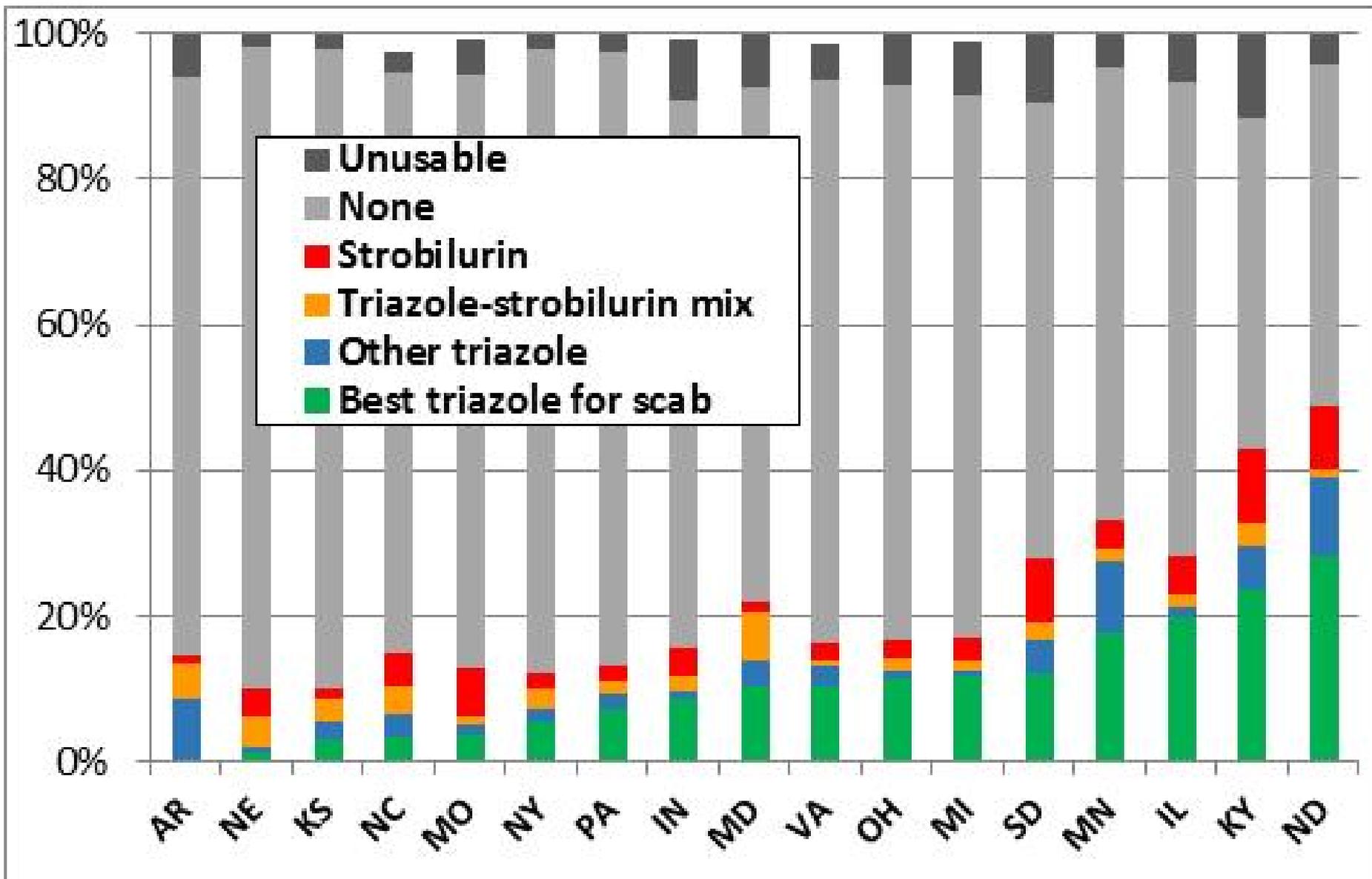
Barley: 169,000 ac

Acres and names of top 3 varieties the last time respondents harvested barley for grain

Acreege of scab-resistant varieties

Mkt class	MR varieties	MS varieties	S varieties	Unknown resistance	Unknown variety	TOTAL ACRES
	% row total	% row total	% row total	% row total	% row total	
HRS	47%	24%+	9%	<1%	6-9%	632,822
Durum	29%	36%	27%	1-2%	5-8%	100,411
SWW	21%	~1%	23%	~1%	55%	18,376
SRW	15%	21%	13%	2%	49%	177,116
HRW	11%	47%	13%	6%	23%	450,049
Barley	8%	42%	36%	6%	8%	168,836
TOTAL ACRES	421,097	583,440	228,859	45,305	268,909	1.55 mill

Which fungicide applied last time scab was primary target?



Where do these growers get their information about scab?
How does that influence their adoption of management practices?
How can we better communicate the advantages of adoption?



By which methods and technologies do you **receive information on risk or management of scab?**

Which one is **primary** for you?

(Averages across 17 states)

Email Alerts	<i>A source</i>	12%
	<i>Primary</i>	7%
Print Publications	<i>A source</i>	40%
	<i>Primary</i>	36%
Risk Forecasting Website	<i>A source</i>	7%
	<i>Primary</i>	4%
Social Media (FB, Twitter)	<i>A source</i>	3%
	<i>Primary</i>	2%
Texts or Emails on Cell Phone	<i>A source</i>	10%
	<i>Primary</i>	7%
None Reported	<i>A source</i>	45%
	<i>Primary</i>	45%

Which sources are important to you for information about scab development and its control on wheat & barley?

Which one is primary for you?

(Averages across 17 states)

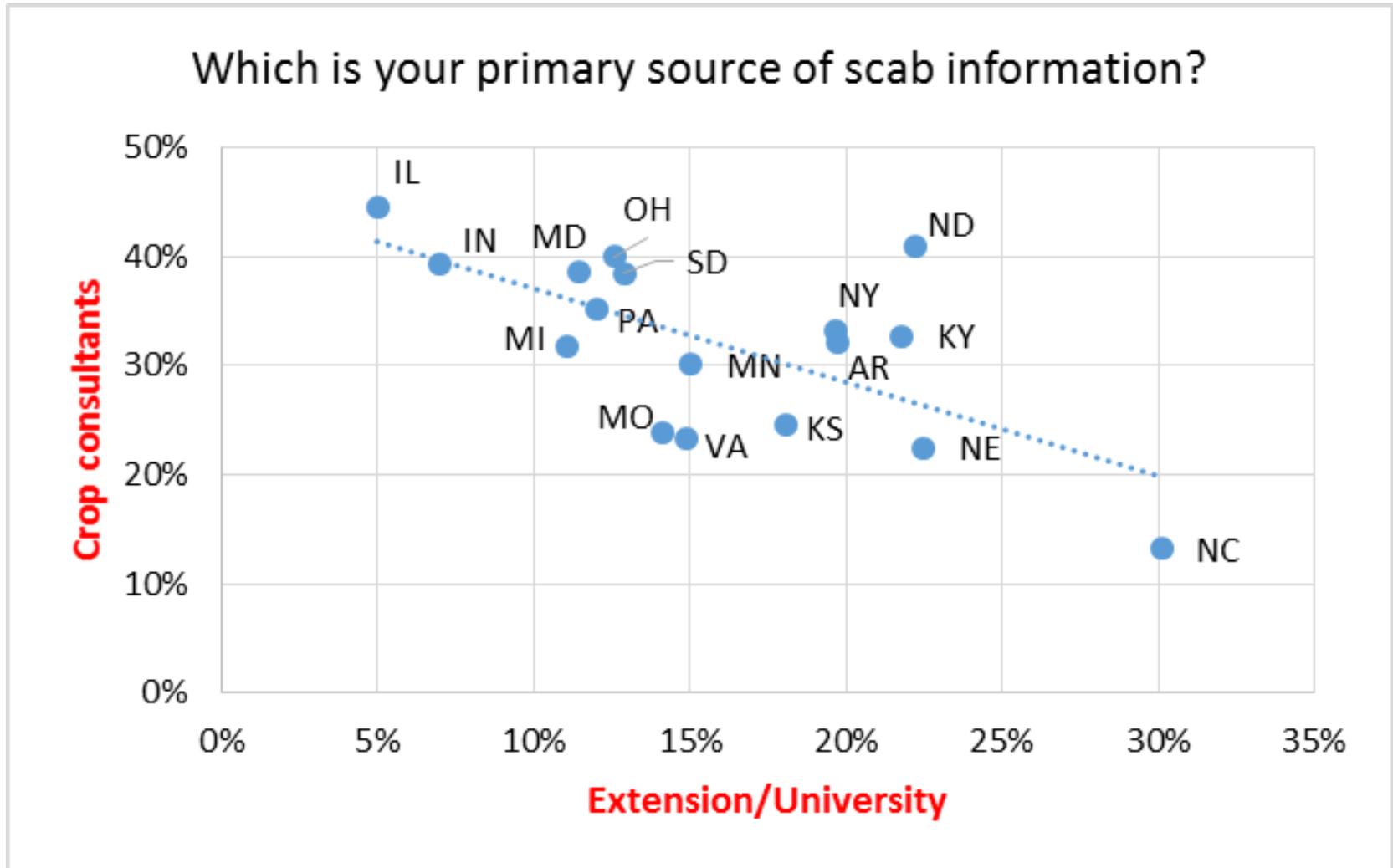
Chemical Companies	<i>Important</i>	23%
	<i>Primary</i>	11%
Crop Consultants	<i>Important</i>	44%
	<i>Primary</i>	34%
Extension/ University	<i>Important</i>	30%
	<i>Primary</i>	16%
Other Farmers	<i>Important</i>	28%
	<i>Primary</i>	12%
Grain Buyers	<i>Important</i>	8%
	<i>Primary</i>	3%
None Reported	<i>Important</i>	20%
	<i>Primary</i>	24%

Large range in reliance on crop consultants & extension/univ. for scab info

	Crop Consultants	
	<i>Imp't</i>	<i>Primary</i>
<i>Illinois</i>	52%	44%
<i>North Dakota</i>	54%	41%
<i>Ohio</i>	47%	40%
<i>Indiana</i>	48%	39%
<i>Maryland</i>	51%	39%
<i>South Dakota</i>	45%	38%
<i>Pennsylvania</i>	47%	35%
<i>New York</i>	47%	33%
<i>Kentucky</i>	47%	33%
<i>Arkansas</i>	43%	32%
<i>Michigan</i>	40%	32%
<i>Minnesota</i>	43%	30%
<i>Kansas</i>	31%	25%
<i>Missouri</i>	32%	24%
<i>Virginia</i>	35%	23%
<i>Nebraska</i>	33%	22%
<i>North Carolina</i>	25%	13%
ALL STATES	44%	34%

	Extension/ University	
	<i>Imp't</i>	<i>Primary</i>
<i>North Carolina</i>	44%	30%
<i>Nebraska</i>	32%	22%
<i>North Dakota</i>	43%	22%
<i>Kentucky</i>	37%	22%
<i>Arkansas</i>	35%	20%
<i>New York</i>	39%	20%
<i>Kansas</i>	29%	18%
<i>Minnesota</i>	31%	15%
<i>Virginia</i>	29%	15%
<i>Missouri</i>	26%	14%
<i>South Dakota</i>	26%	13%
<i>Ohio</i>	25%	13%
<i>Pennsylvania</i>	25%	12%
<i>Maryland</i>	28%	11%
<i>Michigan</i>	23%	11%
<i>Indiana</i>	22%	7%
<i>Illinois</i>	18%	5%
ALL STATES	30%	16%

Crop consultants and extension/university tended to be alternatives as primary source of scab information



State	Chemical Companies	
	Imp't	Primary
Virginia	26%	21%
Kentucky	32%	19%
Illinois	27%	17%
Indiana	28%	17%
Arkansas	26%	16%
North Carolina	25%	15%
North Dakota	32%	14%
Pennsylvania	24%	13%
Ohio	22%	11%
South Dakota	21%	10%
Maryland	21%	10%
Missouri	19%	10%
Michigan	18%	8%
Nebraska	15%	7%
Kansas	13%	6%
Minnesota	21%	5%
New York	15%	2%
ALL STATES	23%	11%

State	Other Farmers	
	Imp't	Primary
Missouri	38%	23%
Nebraska	29%	20%
Michigan	29%	15%
Illinois	26%	15%
South Dakota	30%	14%
Kansas	26%	14%
Pennsylvania	29%	13%
Minnesota	30%	13%
Ohio	29%	12%
New York	26%	11%
Indiana	22%	10%
Kentucky	28%	10%
Virginia	25%	9%
North Carolina	22%	9%
Maryland	23%	9%
North Dakota	29%	7%
Arkansas	12%	5%
ALL STATES	28%	12%

How does primary source of scab information affect use of scab management practices?

Primary info source	Practice: grow MR varieties		Practice: use a recommended fungicide	
Crop consultants	65.2%	A	44.7%	A
Extension/university	62.0%	AB	25.8%	C
Chemical companies	56.0%	B	33.9%	B
Grain buyers	53.2%	BC	23.3%	C
Other farmers	46.1%	C	20.8%	C
No response	42.5%	C	26.8%	C

- Those with crop consultants or extension/university as primary info source more often indicated growing MR varieties is a key strategy
- Those with crop consultants or chemical companies as primary info source more often indicated using a recommended fungicide is a key strategy

And those who've had DON problems are more likely to report that they **use the practice of growing MR varieties...**

Primary info source	Have had DON problems		Have not had DON problems	
Crop consultants	74.4%	A	56.0%	CD
Extension/university	71.9%	AB	52.1%	DE
Chemical companies	62.3%	BC	49.7%	E
Grain buyers	66.7%	ABCDE	39.7%	FG
Other farmers	52.7%	CDEF	39.5%	G
No response	59.0%	CDE	26.0%	H

For example: 74.4% of those who've had DON problems and use crop consultants as primary scab info source say they grow MR varieties

But here are percentages of growers who **actually named at least one MR variety** they had planted

Primary info source	Have had DON problems		Have not had DON problems	
Crop consultants	28.9%	AB	24.6%	BCD
Extension/university	36.0%	A	26.8%	BC
Chemical companies	28.1%	ABCD	22.2%	CDE
Grain buyers	33.3%	ABCDE	18.4%	DEF
Other farmers	14.9%	EF	16.1%	F
No response	28.0%	ABCD	12.6%	F

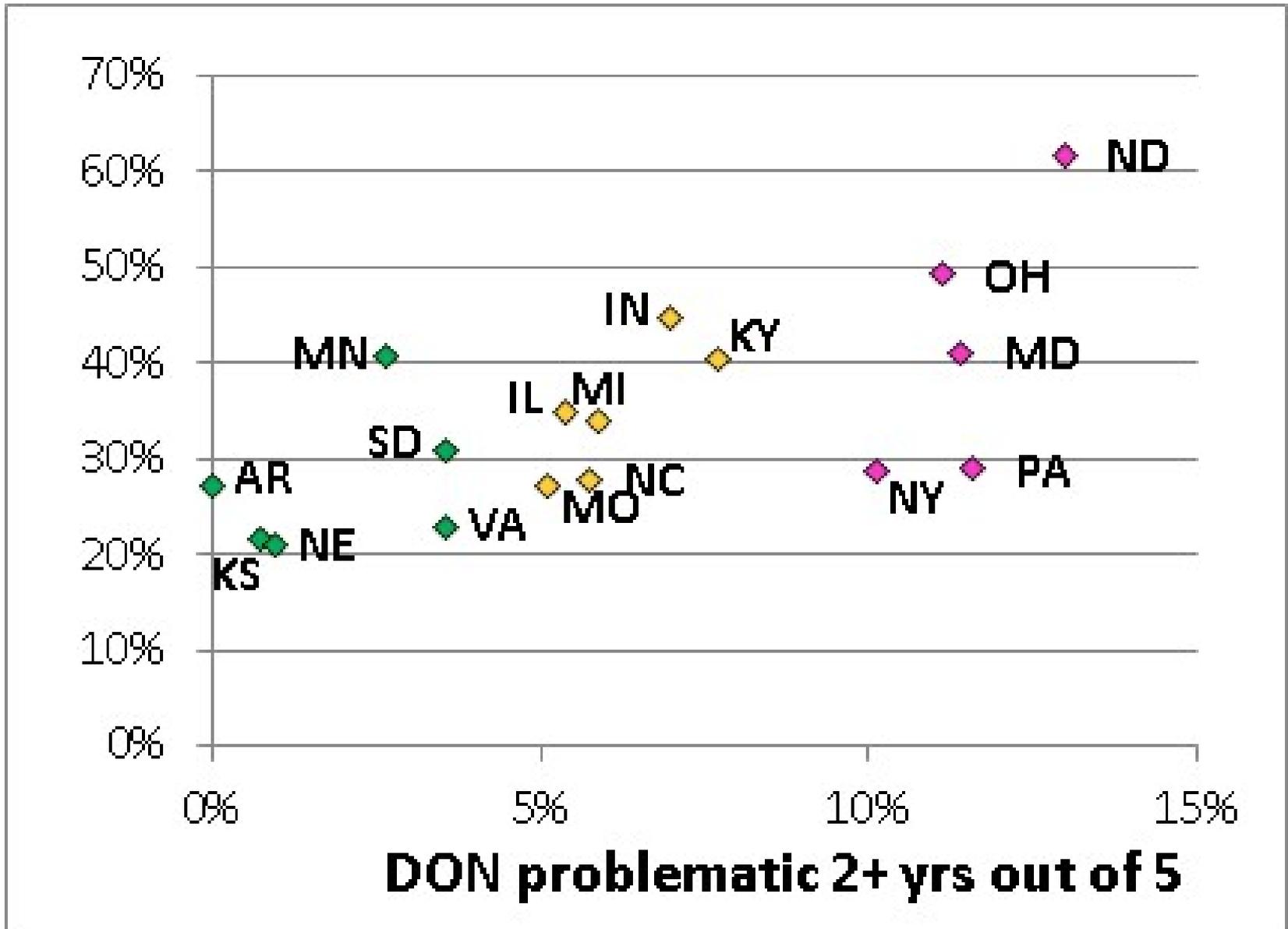
- Primary information source made less difference in MR variety use as measured by who named MR varieties.
- No history of DON problems – about 30% reduction in MR use by this measure as well.

Growing MR varieties:

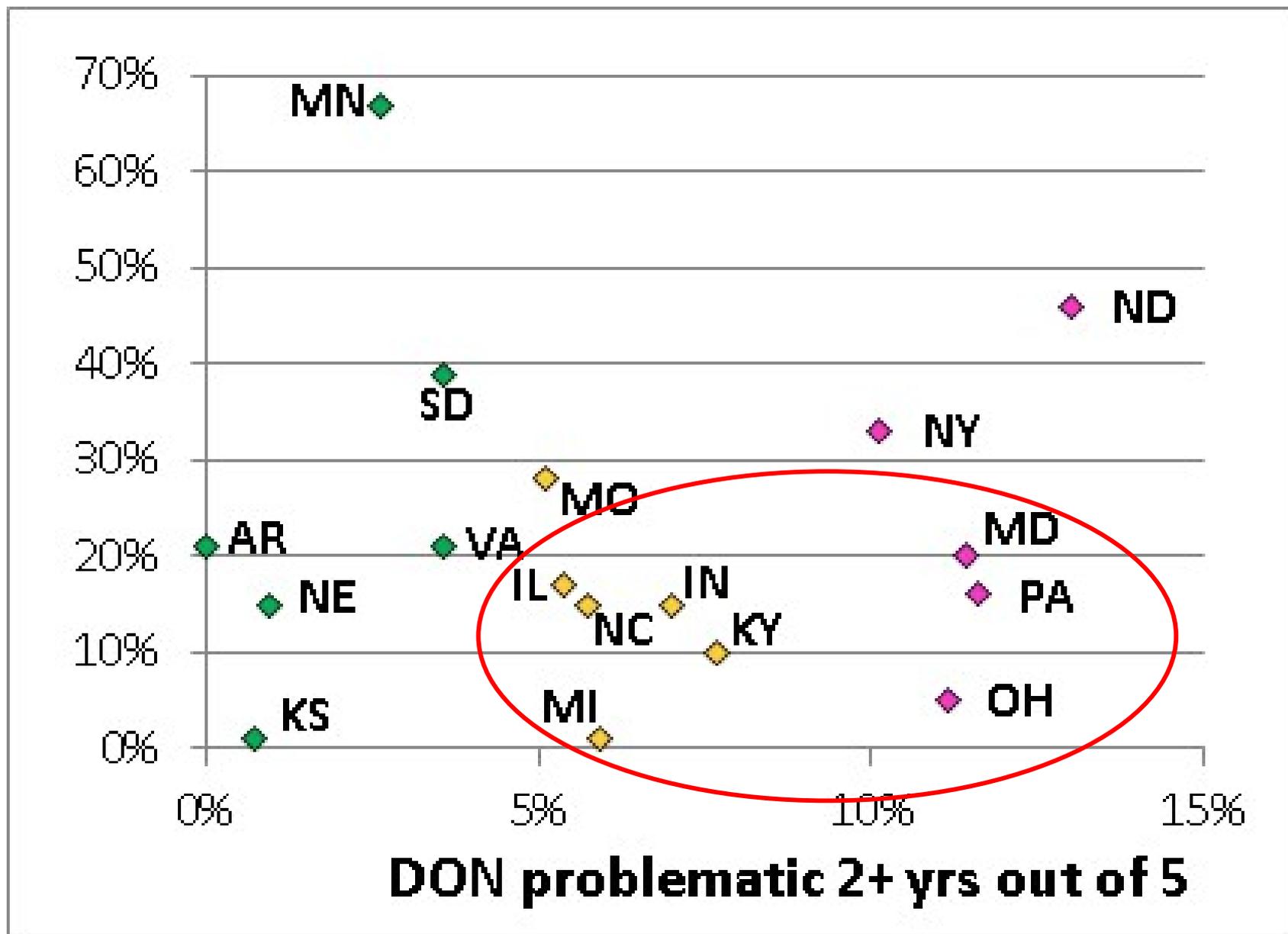
- Growers who rely on extension/university or crop consultants are more likely to recognize importance
- But information source makes small difference in actual adoption.
- History of scab problems increases MR use (but scab is episodic....)
- These data were across market classes – the gap between intention and reality is greatest in soft wheat.



All or >50% of my varieties are MR to scab



Wheat: Of top varieties grown, % acres in MR varieties



Those who've had scab problems are also more likely to report they **use the practice of applying a recommended fungicide...**

Primary info source	Have had DON problems		Have not had DON problems	
Crop consultants	55.0%	A	34.4%	C
Chemical companies	43.0%	B	24.8%	D
Extension/university	33.1%	BC	18.6%	EF
Grain buyers	33.3%	BCDE	13.2%	FG
Other farmers	31.1%	BCD	10.6%	G
No response	43.0%	B	10.7%	G

- Those who rely on crop consultants for scab information report the highest rates of using a recommended fungicide.

But...percentages of growers who **named one of the 3 recommended triazoles as what they applied last time scab was the primary target**

Primary info source	Have had DON problems		Have not had DON problems	
Crop consultants	29.7%	A	17.1%	C
Chemical companies	29.8%	AB	12.9%	D
Extension/university	30.2%	AB	12.1%	D
Grain buyers	8.3%	CDE	8.1%	DE
Other farmers	8.1%	DE	4.8%	E
No response	22.0%	BC	2.6%	E

- Primary information source made less difference in recommended triazole use as measured by who named one of the 3 most effective products.
- No history of DON problems – average 55% reduction by either measure.

Conclusions

- Print publications are the dominant way growers get information
- Crop consultants and extension are most important information sources, and....
- Those who rely on them for scab information endorse IM -- MR varieties and recommended fungicides are widely recognized as important
- But there is a gap between awareness and what actually gets done
- The DETAILS of correctly managing scab aren't reaching beyond a core group of growers
- We need better strategies to promote MR varieties beyond the core group, e.g.
 - Recommended list
 - Regionally specific publicity during variety selection
- Need stronger messaging about strobilurin timing & scab

Thanks!



- US Wheat & Barley Scab Initiative
- North Carolina Small Grain Growers Association