

National Survey of Wheat & Barley Producers



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Why a survey?

- Millers reported average DON levels no different from those 10 years ago
- No mechanism in soft wheat states for tracking acreage by variety
- Impression: spotty adoption of management practices
 - Widespread planting of S varieties
 - In soft-wheat states, 42-80% of lines in OVTs were S or MS



US Wheat and Barley Scab Initiative

National survey of wheat and barley producers

- **With NASS, designed 4-page questionnaire**
- **Questions:**
 - How important is scab to producers?
 - Which scab management tools are being used?
 - What hinders use of these tools?
- Mailing with phone follow-up
- February-March 2014
- 17 states; 15,900 growers



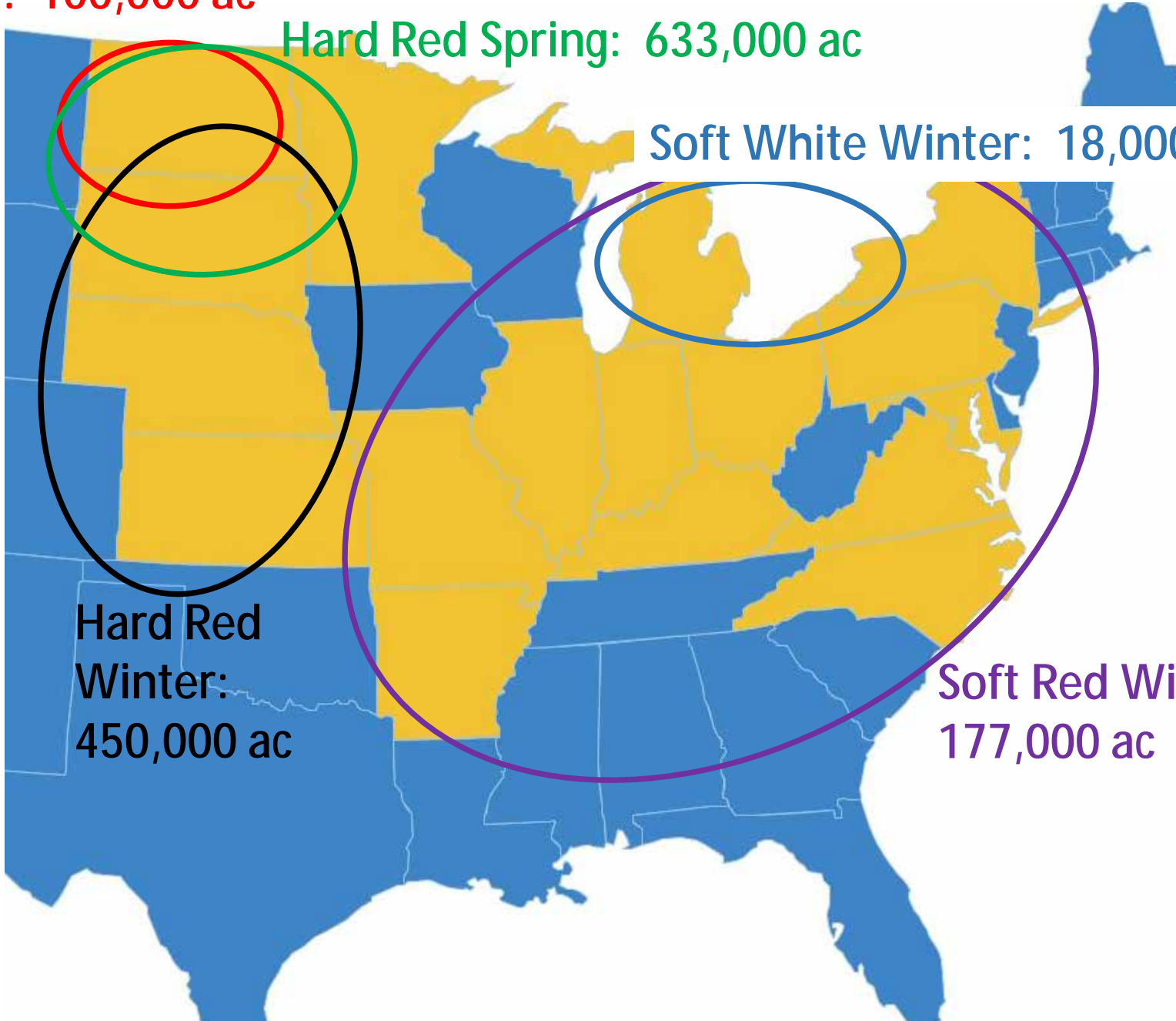
STATE	POPULATION	SAMPLE	Sample as % of pop	USEABLE REPORTS	
				Count	% of sample
Arkansas	2,495	449	18%	81	18%
Illinois	11,247	712	6%	261	37%
Indiana	7,307	617	8%	229	37%
Kansas	21,370	1,252	6%	426	34%
Kentucky	9,080	748	8%	156	21%
Maryland	2,251	673	30%	254	38%
Michigan	8,435	962	11%	407	42%
Minnesota	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%

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Durum: 100,000 ac

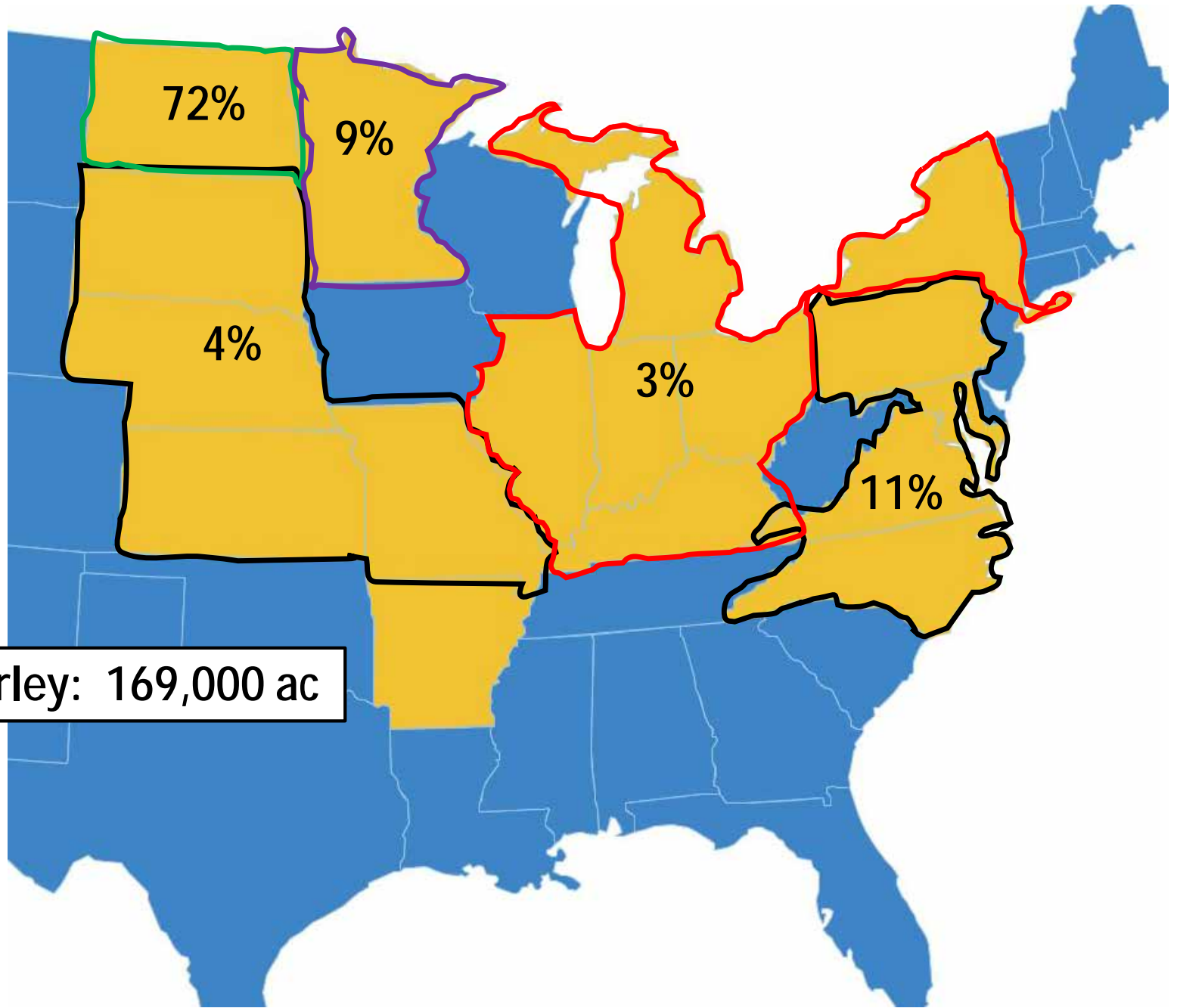
Hard Red Spring: 633,000 ac

Soft White Winter: 18,000 ac



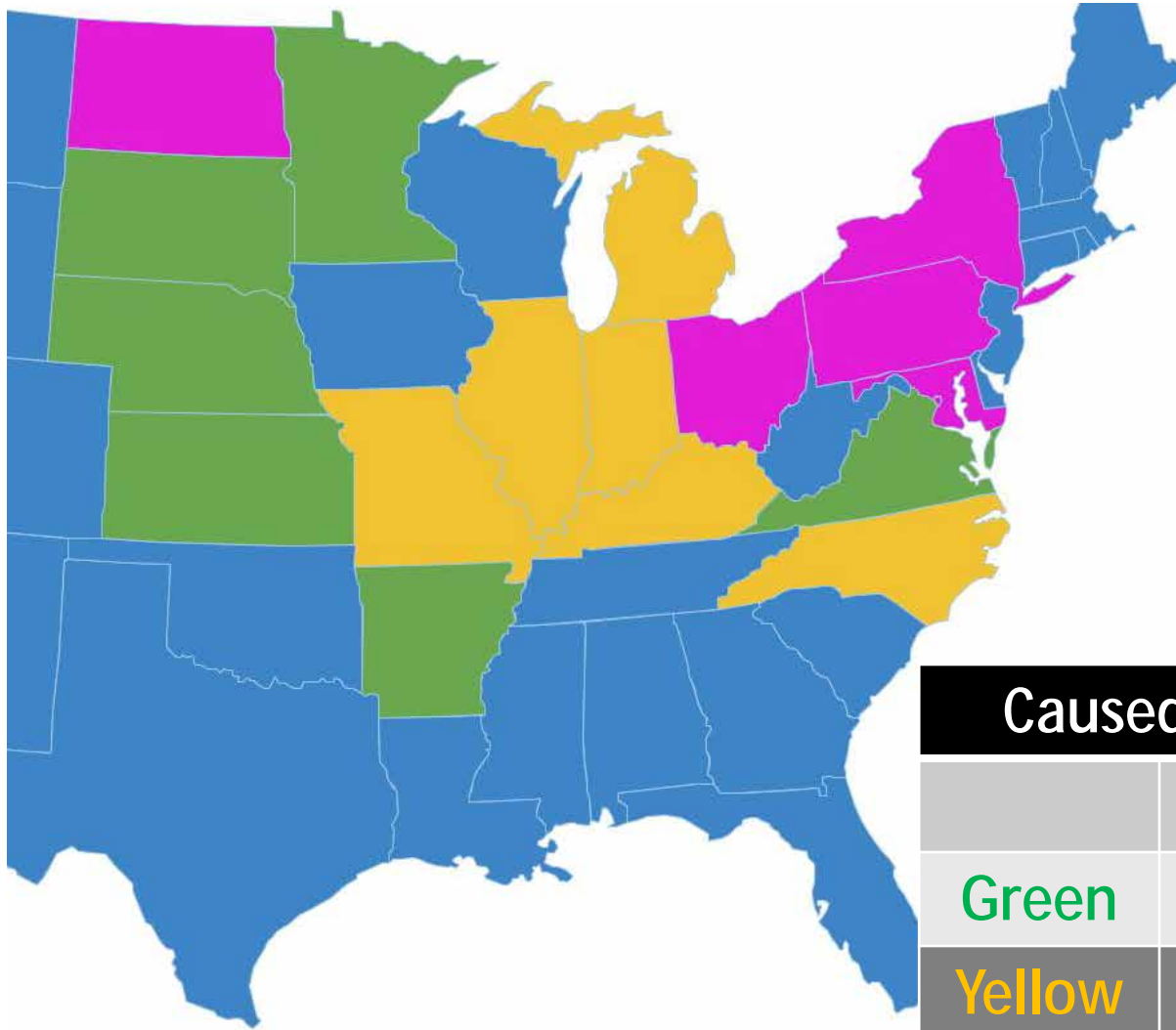
Hard Red Winter: 450,000 ac

Soft Red Winter: 177,000 ac



Barley: 169,000 ac

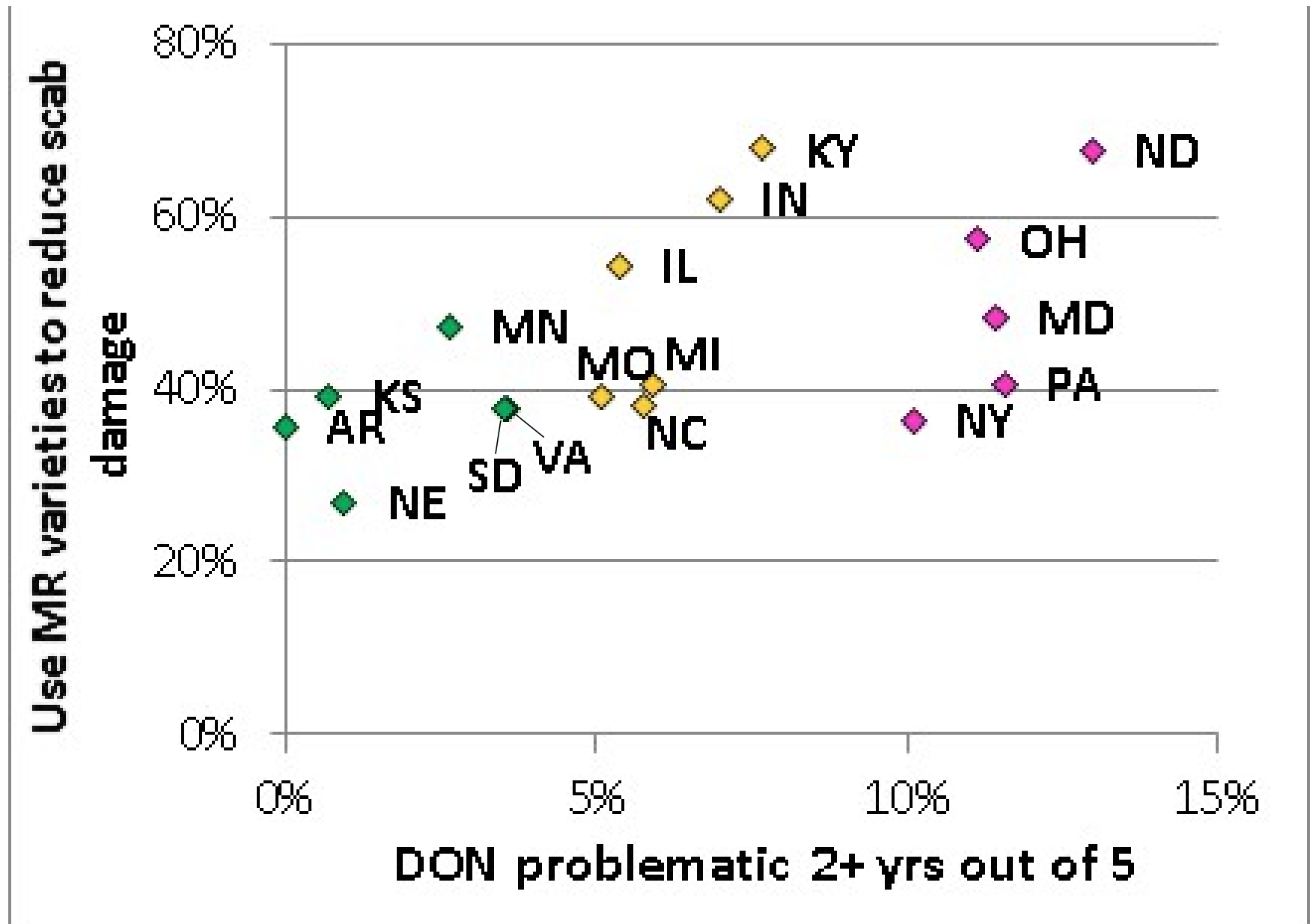
In the past 5 years, how serious a problem was scab?



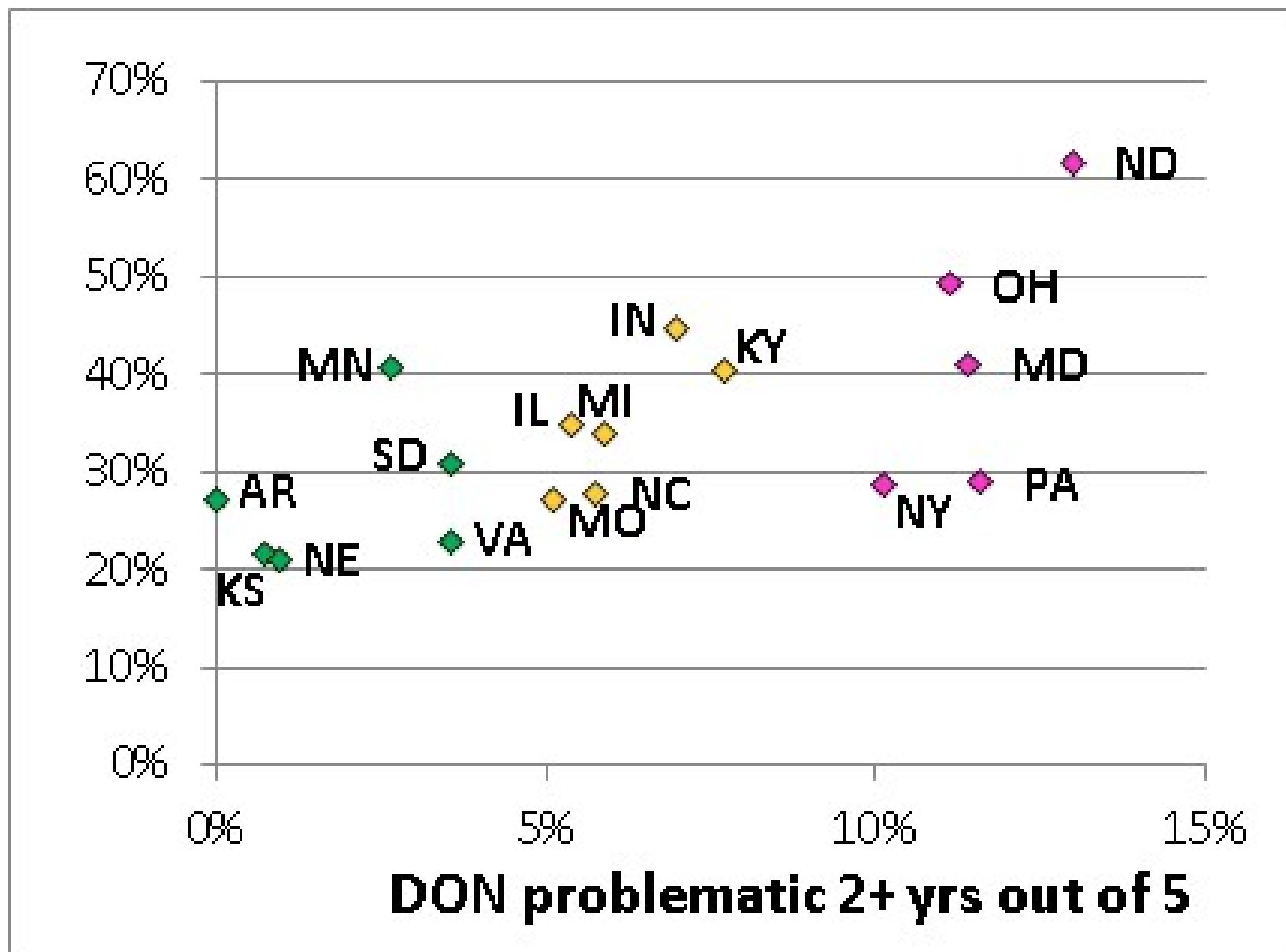
Caused problem with DON

	0-1 yr	2-3 yr	4-5 yr
Green	96%	2%	0%
Yellow	92%	5%	1%
Pink	85%	8%	3%

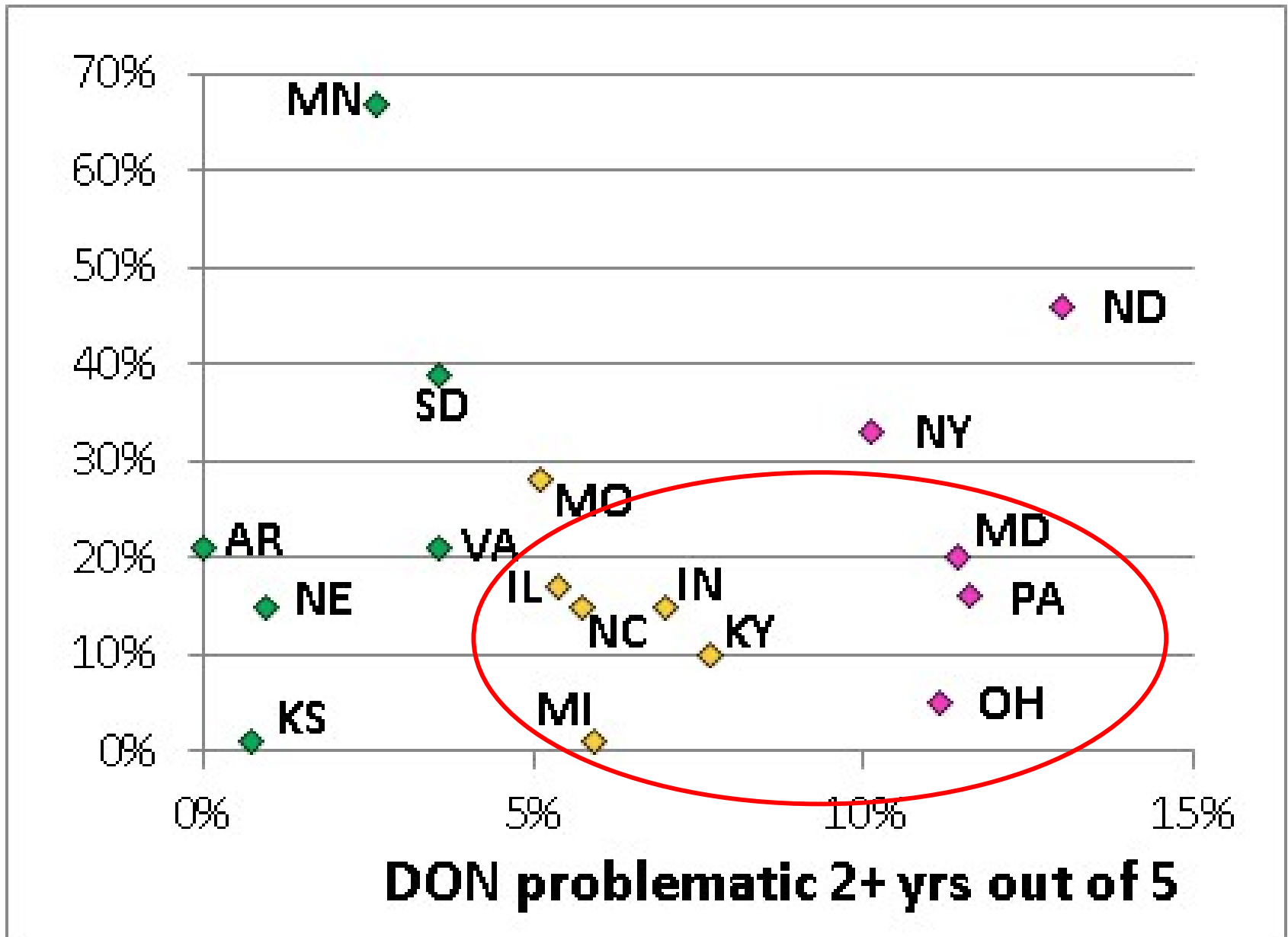
Which practices used? **Grow MR varieties**



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



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



Acreage 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

Acreage of soft red winter wheat

STATE	MR varieties	MS varieties	S varieties	Unknown resistance	Unknown variety	TOTAL ACRES
	% row total	% row total	% row total	% row total	% row total	
AR	21%	15%	10-19%	19-29%	31%	10,362
IL	17%	21%	7%	3%	52%	21,044
IN	15%	15%	1-2%	<1%	67%	12,287
KY	10%	47-71%	2-3%	0%	40%	16,106
MI	~1%	23%	22-34%	<1%	44%	22,283
MD	20%	21%	17%	0%	42%	14,459
MO	28%	16%	2-5%	~1%	52%	20,545
NY	33%	19%	1-3%	~1%	45%	8,166
NC	15%	10%	40%	<1%	27-40%	18,892
OH	5%	21%	4%	2%	69%	17,635
PA	16%	12%	6%	4%	62%	7,027
VA	21%	15-30%	16%	<1%	46%	6,789
OVERALL	15%	21%	13%	2%	49%	177,116

North Carolina extension meeting attendees, 2014-15



Total respondents: 267
 Counties: 15
 No longer farming: 8
 Did not plant wheat in 2014: 47

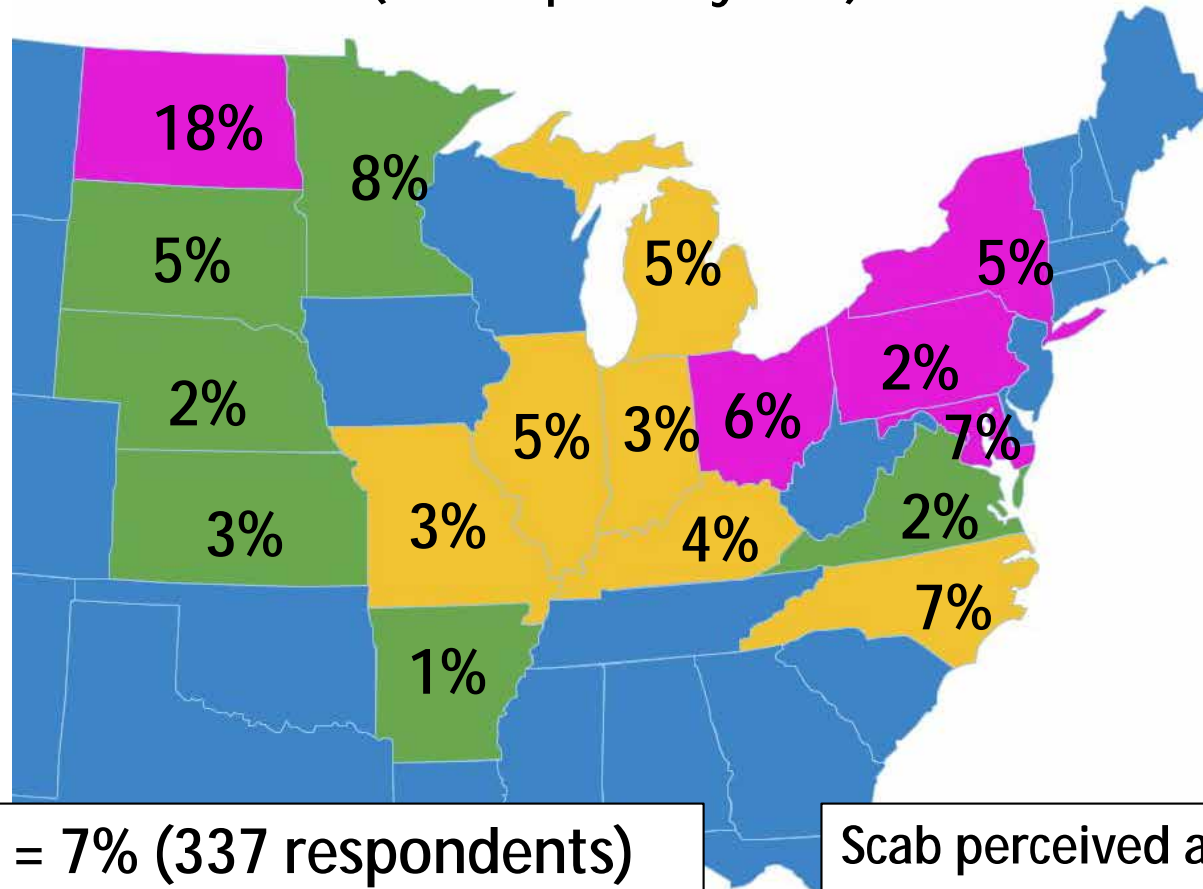
Number of respondents	Percent of total wheat acres planted in 2014					
	MR	MS	S	Unknown resistance	Unknown variety	Total acres
198	22%	24%	49%	0%	5%	82,514

NC Official Wheat Variety Trial

Scab rating of above-average yielding varieties

Year	MR varieties		MS varieties		S varieties		Unknown resistance		Total # varieties
	#	%	#	%	#	%	#	%	
2015	8	33%	10	42%	6	25%	0	0%	24
2014	4	22%	10	56%	4	22%	0	0%	18
2013	6	32%	4	21%	5	26%	4	21%	19
2012	6	33%	8	44%	4	22%	0	0%	18
2011	3	21%	5	36%	5	36%	1	7%	14
2010	7	44%	4	25%	5	31%	0	0%	16

Use of scab risk forecasting website (in the past 5 years)

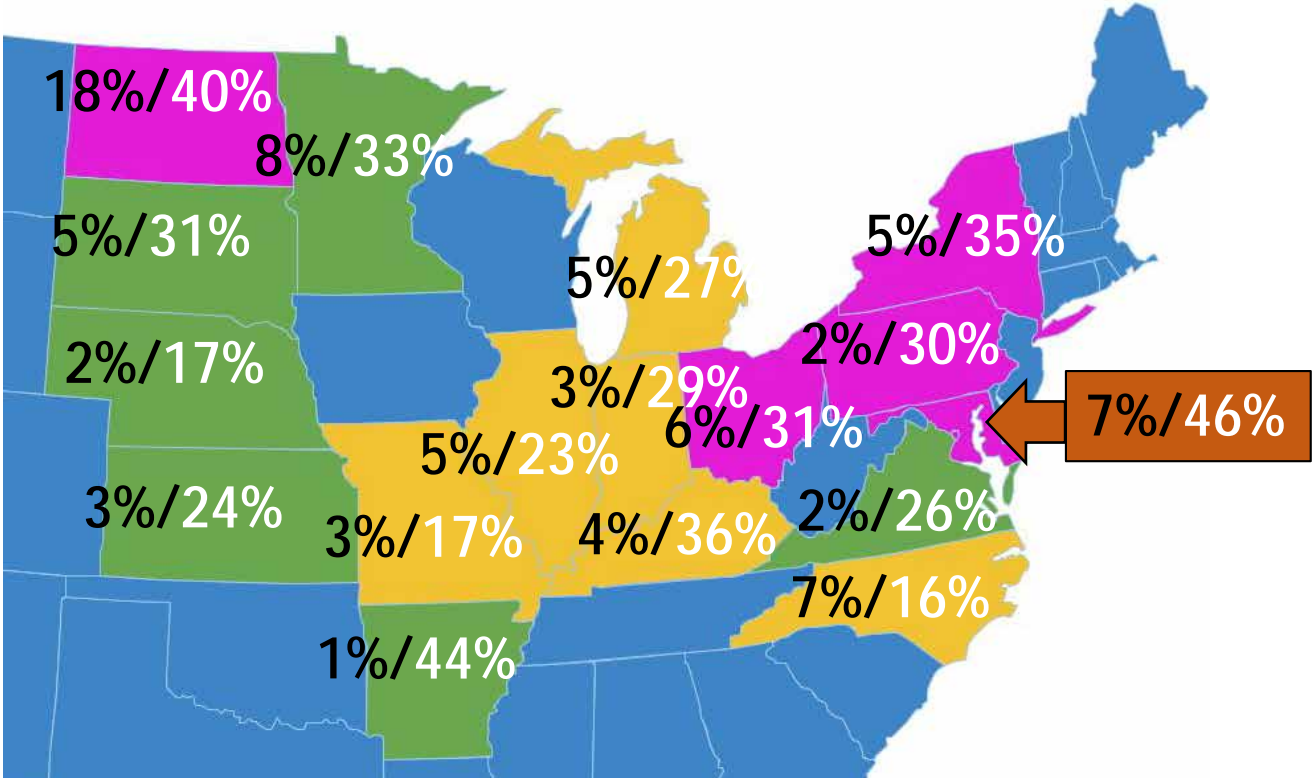


- Average = 7% (337 respondents)
- Of those 337 people, 83%-88% found it easy to understand/use and useful

Scab perceived as problematic:

- green = least
- yellow = intermediate
- pink = most

Scab risk forecasting website / crop consultant

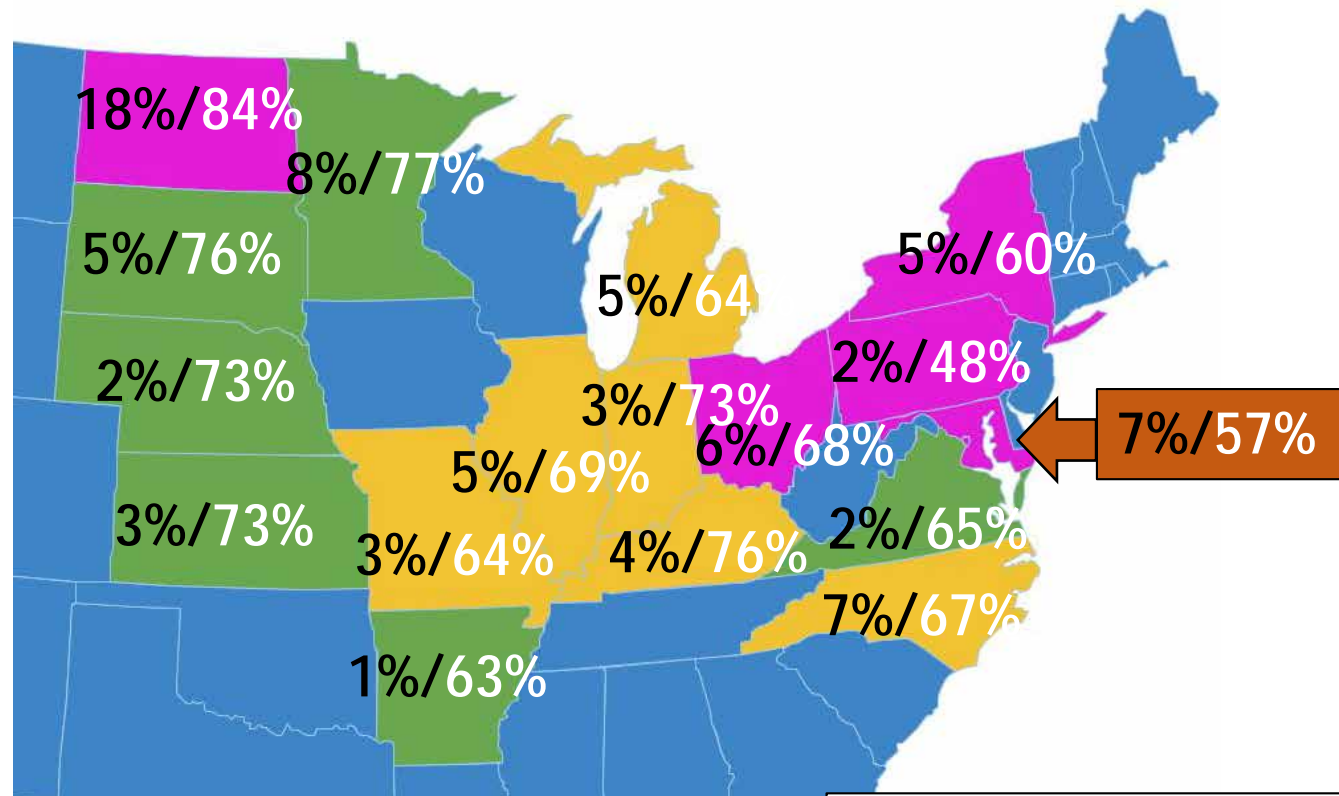


- Black = has used scab risk forecasting site
- White = has employed a crop consultant

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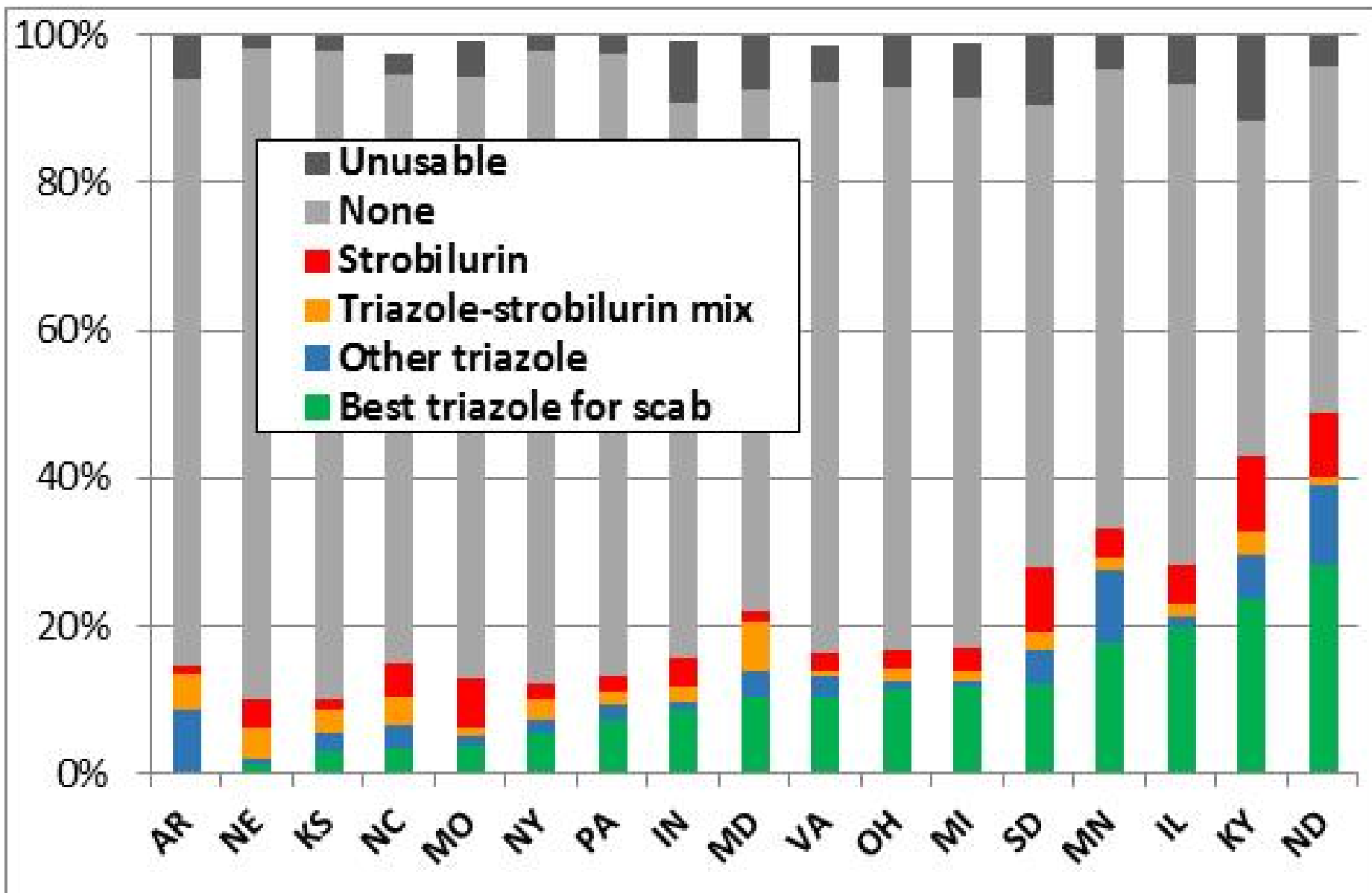
Scab risk forecasting website / internet access



- Black = has used scab risk forecasting site
- White = has internet access

- Scab perceived as problematic:
- green = least
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Which fungicide applied last time scab was primary target?

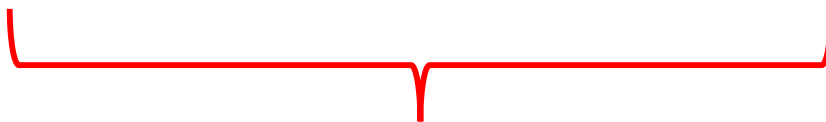


Which barriers limit adoption of scab BMP?

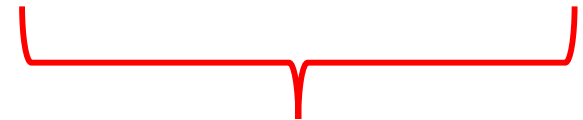
SOFT	Resistance info not available or timely	Scab-resistant seed hard to obtain	Scab risk info hard to obtain in time	Flowering hard to ID (fungicide timing)	Weather prevents timely fungicide	Hard to spray fields for logistical reasons
AR	10%	1%	5%	4%	5%	4%
IL	10%	7%	10%	15%	20%	12%
IN	7%	7%	10%	9%	18%	9%
KY	21%	13%	10%	10%	21%	8%
MI	10%	5%	6%	11%	17%	12%
MD	10%	7%	7%	10%	15%	12%
MO	9%	3%	5%	9%	17%	11%
NY	13%	8%	8%	4%	17%	15%
NC	8%	5%	6%	7%	18%	7%
OH	7%	8%	8%	13%	24%	8%
PA	7%	7%	5%	10%	17%	13%
VA	6%	4%	4%	6%	16%	11%
ALL	9%	6%	7%	10%	18%	11%

Which barriers limit adoption of scab BMP?

HARD	Resistance info not available or timely	Scab-resistant seed hard to obtain	Scab risk info hard to obtain in time	Flowering hard to ID (fungicide timing)	Weather prevents timely fungicide	Hard to spray fields for logistical reasons
KS	6%	4%	6%	6%	10%	8%
MN	7%	5%	5%	11%	21%	14%
ND	9%	7%	6%	16%	34%	21%
NE	8%	5%	2%	4%	6%	2%
SD	5%	3%	3%	10%	12%	10%
ALL	7%	5%	5%	11%	21%	14%



2% lower than soft wheat states



3% higher than soft wheat states

Take-home: Why is economic damage from scab so persistent?

- Most producers do not see scab as a serious problem
- Scab-resistant varieties are widely used in HRS, but not in barley or other wheat market classes
- In soft wheat region, most higher-yielding varieties are MS or S to scab
- In SRW and SWW, many producers cannot name the varieties they are planting (and thus are not selecting scab-resistant varieties)
- Few producers directly monitor scab risk (perhaps their consultants and county agents do)
- Few producers name an effective, scab-targeted fungicide

What are our best opportunities to increase use of scab BMP?

- **Grain purchasers** – incentive programs for MR varieties
 - **Example: Bonlee Mills -- first identity-preserved program in NC aimed at scab resistance**
 - \$0.20/bushel premium for growing certified seed of an MR wheat variety
 - Additional \$0.05/bu premium if grain is delivered with <1 ppm DON



Bonlee Mills, Siler City, NC

What are our best opportunities to increase use of scab BMP?

- **USWBSI:**

- **Metrics and goals** to increase percentage of released varieties (public and private) that are MR
- **Study districts where adoption is high** for a given market class – what is working?
- **Publicity** to promote BMP to growers who don't attend field days, winter meetings

- **State specialists**

- **Address barriers to adoption** where they are particularly high

Thanks!



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