



MSPB'S SOYBEAN MANAGEMENT PRACTICES SURVEY–2019 RESULTS

OBP, MSPB's communications contractor, commissioned a [survey of Mississippi soybean producers](#) to determine practices they used in producing a crop in 2019, and the sources they depend on for production information.

In the following narrative, participation in and responses to the 2019 survey are shown, with responses to the same or similar queries in the 2018, 2017, 2016, and 2015 surveys, respectively, shown in parentheses.

The survey was distributed online to growers in Dec. 2019. 99 growers answered at least one survey question, and 74 growers answered all survey questions. Survey participants in 2019 were from 34 Mississippi counties (11 Delta counties and 23 non-Delta counties), and they farm an average of 2,329 total acres and 1,125 soybean acres.

General Crop Production

63% (59, 66, 66, 69) of responding producers rotate soybeans with another crop on an annual basis, and 79% (85, 88, 90, 86) of those growers rotate with corn. Cotton and rice were the next most rotated crops with soybeans at 35% and 30%, respectively.

46% (37, 37, 35, 42) of the respondents planted in rows that were 30 in. wide or less, and only 12.5% (26, 19, 19, 18) still planted in 38-inch-wide single rows. 19% (26, 28, 24, 20) planted in twin rows that were on 38-in. centers. Thus, about two-thirds of respondents in all years planted in narrow or twin rows. The biggest shift in row spacing was the increase in producers planting in 30-in.-wide rows and the decrease in producers planting in twin rows.

In all years, yield is the trait rated most important by respondents when selecting a variety, with maturity group and specific soil type of a field to be planted to a variety ranking as second and third most important.

Variety selection was ranked as the most important factor [93% (96, 98, 95, 96)] by growers to increase

yield, while planting date at 89% was a close second. This followed the same trend as previous years. Soil sampling at 83% (83, 81, 82, 80), agronomy factors such as row spacing and seeding rate at 79% (73, 75, 69, 65), crop rotation at 76% (65, 71, 76, 74), and fungicide application at 69% (65, 72, 71, 70) were also viewed as significant factors to consider for yield increase.

Soil Factors

85% of the respondents test soil for fertility. 79% of those respondents test soil for fertility at least every 3 years (some more often). 79% of those respondents test their soil for fertility on 50% or more of their soybean acres, and 58% (57, 58, 57, 59) of the producers who collect soil fertility samples do so on most (76-100%) of their acres.

74% (64, 71, 67, 61) of the respondents know the amounts of nutrients removed from the soil by their soybean crop.

49% of responding producers fertilize their soybean fields before planting every year, whereas 42% of producers only do this sometimes. 10% never fertilize their soybean crop.

Only 41% (42, 48, 49, 48) of growers know their soil pH every year, whereas 55% check that soil attribute only sometimes.

95% of those who fertilize do so using commercial products, whereas only 22% use organic products such as chicken litter.

Soil fertility for soybeans (55%) and weed management/control (40%), which includes herbicide resistance management, were the items that producers desired more information on.

Irrigation

34% (47, 43, 42, 48) of the respondents do not irrigate any of their crops, whereas 42% irrigate at least 60%



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of their total acres. About 50% of respondents' total irrigated acreage was devoted to soybeans.

Furrow irrigation is the water delivery system most used by irrigators.

Of those that irrigate, 49% (45, 42, 49, 42) use PHAUCET/Pipe Planner, 22% (21, 24, 20, 14) use surge valves, and 50% (34, 38, 37, 31) use soil moisture sensors.

In 2019, 56% of the producers who irrigated used Pipe Planner on at least 80% of their irrigated acres. In 2018 and 2017, the percentage was 47 and 49, respectively. This represents a slight increase from these previous 2 years.

A low percentage of irrigated producers know the amount of water they are using to irrigate most (81-100%) of their irrigated soybean acreage as indicated by only 17% (21, 21, 16, 8) who use well or flow meters. 54% (48, 52, 60, 72) of the irrigators monitor their water use on fewer than 40% of their irrigated acres.

All of these responses indicate that the adoption of water saving technologies by soybean irrigators in Mississippi is stagnant or increasing very slowly even though MSPB-funded research has proven their worth for both water use efficiency and farm profitability.

Insect and Disease Factors

70% (71, 76, 74, 77) of the respondents check or scout fields for presence of major diseases on a weekly basis, and 78% (79, 84, 82, 83) check for insects on a weekly basis.

83% (74, 80, 75, 77) of the weekly scouting is done by walking the fields.

67% (57, 58, 58, 52) of responding growers automatically apply a fungicide to their soybean crop, whereas 27% (43, 42, 42, 41) apply fungicides only when diseases are present.

58% (57, 65, 56, 59) of responding producers use a sweep net or drop cloth to make weekly checks for insect presence.

84% (77, 86, 88, 78) of producers treat for insects when their numbers reach economic thresholds.

60% (53, 64, 59, 57) of the respondents use scouting results to choose varieties for next year's crop.

Nematode Factors

Respondents indicated that the nematode presence in their fields is about equal for each of the three major species that plague soybeans—i.e., 12% reniform, 15% root knot, and 16% soybean cyst nematode. 34% of respondents who have nematodes do not know which species are present—i.e., soybean cyst, reniform, and root knot. 36% (22, 22, 20, 37) of the respondents indicated they do not have any nematodes in their fields.

The question that was asked does not indicate how many soybean producers have no knowledge of nematode presence in their fields. It is hoped that producers are keenly aware of the need to sample for these pests so that remedial actions can be applied when/if they are present.

Weed Factors

82% (80, 81, 77, 71) of growers use pre-plant or pre-emergence herbicides on more than 50% of their acres, and 75% (72, 72, 66, 61) use them on more than 75% of their acres. Obviously, producers are following recommendations to use PRE herbicides as part of an integrated weed control program to provide more modes of action to manage the increasing presence of herbicide-resistant weeds.

82% of responding producers scout for weeds weekly during the critical period for weed control.

72% (61, 72, 68, 67) of responding producers who apply harvest aids or desiccants do so to enhance early harvest, whereas 41% (30, 29, 33, 29) of respondents apply harvest aids/desiccants for weed control prior to



harvest. 9% (25, 15, 19, 19) do not apply harvest aids to any of their soybean acres.

Pest Resistance Management

73% (82, 84, 77, 74) of responding growers always apply fungicides, insecticides, and herbicides at the full labeled rate. This indicates that producers have become increasingly aware of the importance of this when applying pesticides.

94% (91, 95, 98, 95) of respondents used 2 or more modes of action (MOA) when applying herbicides. 46% (36, 40, 27, 26) used 3 or more MOA's.

A large percentage of respondents use pesticides with two modes of action when applying fungicides (88%) and insecticides (82%).

47% of respondents are always cognizant of using multiple modes of action when applying herbicides vs. 35% when applying fungicides vs. 27% when applying insecticides. A larger percentage of respondents use three or more modes of action when applying herbicides (43%) vs. fungicides (12%) vs. insecticides (18%).

The increased use of multiple modes of action when applying herbicides, fungicides, and insecticides indicates that producers have become increasingly aware of the importance of this factor in striving for sustainable weed and pest control in soybeans.

Cover Crops

This category was added to the survey in 2018.

34% (18% in 2018) of the respondents use cover crops for soil improvement and 21% (10% in 2018) use them for weed control. Producers who use cover crops do so on an average of 37% of their acreage.

48% (69% in 2018) of the respondents do not use cover crops.

Production Recommendations

69% of producers who responded are somewhat comfortable or comfortable with recommendations made by agricultural retailers.

Ag Retailers [59% (72, 73, 71, 71)], Crop Consultants [64% (58, 70, 70, 70)], MSU-Extension [75% (63, 68, 61, 66)], and Field Trials [68% (57, 62, 63, 63)] are significant sources of information that producers use for making soybean production decisions. 41% (26, 27, 25, 25) of respondents indicated they use MSPB sources (including mssoy.org) for production information.

Over half of the responders in all years stated that they need more information on soil fertility [55% (59, 55, 60, 60)]. 40% (51, 54, 61, 56) stated they need more information on weed management. A significant number of survey respondents indicated a need for more information on disease management [28% (32, 35, 40, 32)] and irrigation efficiency [31% (30, 27, 37, 35)].

53% (58, 75, 65, 60) of respondents recall receiving production information from MSPB, and 81% (53, 66, 59, 57) of the respondents found MSPB information helpful.

General Conclusions–2015-2019

Results from all years of the survey indicate that about two-thirds of responding producers rotate soybean with another crop on an annual basis, and the vast majority of those producers rotate soybean with corn. **Thus, a concerted effort should be directed toward developing the knowledge needed to properly manage a rotational crop production system that involves soybean and corn.**

About two-thirds of responding producers plant in rows that can be categorized as less than wide (rows <30-in. wide or twin rows). **However, a significant number of producers still plant soybeans on wide rows, and the reasons for this are not apparent.**



About two-thirds of producers are aware of the amount of nutrients removed from the soil by a soybean crop. The awareness of this as an important factor for continued high yields should be increased through extension and industry education efforts.

Because a significant percentage of producers may be unaware of possible nematode presence in their fields, an increased education effort about sampling soil for nematodes is warranted. This is especially true since disease surveys indicate that SCN is the soybean pest responsible for the greatest yield loss in Midsouth soybean production systems. Also, with increased rotation of soybean with corn and cotton, sampling for reniform and root knot nematodes has become increasingly important.

The survey results indicate that increased use of tools to improve irrigation efficiency has stagnated, and the adoption percentage is still around 50%. This indicates that the use of these tools is not in the amount needed to reduce/eliminate the decline in the Mississippi River Valley Alluvial Aquifer (MRVAA).

Thus, outreach and education efforts must be increased to ensure that information about all irrigation management tools that can increase irrigation efficiency and enhance knowledge of crop water use by irrigated soybeans is available to and adopted by every irrigator. These tools must be rapidly and completely adopted by all irrigators to ensure the longevity of the MRVAA and to preclude regulatory measures that likely will be needed in the absence of voluntary adoption by producers to conserve this water resource.

Greater than 75% of responding producers use timely scouting to monitor insect and disease pests in soybean. **However, the large percentage of producers who automatically apply a foliar fungicide indicates that knowledge of this practice's contribution to resistance development in targeted diseases is lacking or being ignored.** This can only be remedied by continued and/or increased educational efforts on this subject. Also, producers should understand that the so-called “plant-health enhancement” that is touted from using foliar

fungicides is not real and should not be used as a reason for their automatic application.

The vast majority of respondents use economic thresholds to determine if and when to treat for insect infestations. This indicates that continued research is needed to ensure that threshold numbers are accurate for the various soybean production systems (e.g. irrigated vs. dryland, early-planted vs. late-planted and/or doublecropped, monocropped vs. rotated) in Mississippi.

Producers have obviously taken heed about the importance of weeds developing resistance to herbicides as indicated by the large majority of respondents who use more than one herbicide mode of action, pre-plant and pre-emergence herbicides, and the full labeled rate of herbicides. Proper attention to all these factors is recommended to prevent or delay herbicide resistance development in weeds and to protect the increasingly limited number of MOA's that are available for effective control of problematic weeds.

It is perceived from these results that the use of multiple MOA's in pesticide applications likely pertains mostly to herbicides. Producers must continually be reminded of the importance of this factor in the application of insecticides and fungicides as well. This is especially so since a large percentage of soybean acres are treated for insects each year, a large percentage of growers automatically apply a fungicide to their soybean crop, and resistance development in several fungal pathogens—e.g. *Cercospora sojina*, the causal agent of frogeye leaf spot—has been documented. **Producers must use sound IPM practices when managing both insect and disease pests, and this includes using scouting results and multiple MOA pesticides when needed to manage both pest classes. Application of scouting results to decide when to apply these pesticides should replace their automatic application. This is especially so for managing soybean diseases.**

It is obvious that Mississippi soybean producers have a high regard for the information provided and



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recommendations made by agricultural retailers and crop consultants/advisers. It is thus imperative that the developers of new information and technology engage these information suppliers in educational opportunities that will transfer this new information to them. It is also incumbent on these advisers to stay abreast of the latest information technology from multiple sources regarding all phases of soybean production.

As with all survey instruments, this survey provides only a sampling of production practices and information sources used by Mississippi soybean producers. However, these results do provide a glimpse into what is being done to produce soybeans in the state, and can provide agricultural practitioners with a clue as to what needs more attention and increased educational opportunities.

Hopefully, through this and other summaries that will come from these survey results, producers can see the value of the information they provided and how it can be used to provide insight into what Mississippi soybean producers are now doing or maybe should not be doing to continue the trend of increasing soybean yields in the state.

It is noted that these results are from a very small number of Mississippi soybean producers. Thus, they may overstate the statewide use of certain best management practices and technologies since the respondents are likely those that are more cognizant of these improved agricultural practices and technology.

*Composed by Larry G. Heatherly, Apr. 2020,
larryh91746@gmail.com*