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Research and Development for Potential Policy Changes to
Batture Land in the Lower Mississippi River for the
United States Department of Agriculture (USDA)
Federal Crop Insurance Corporation (FCIC) Program
Final Research Report

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Introduction

AgriLogic Consulting, LLC (hereafter referred to as AgriLogic) has written the following report to address the objectives detailed in the United States Department of Agriculture (USDA) Risk Management Agency (RMA) Solicitation 12FPC320Q0008 - Research and Development for Potential Policy Changes to Batture land in the Lower Mississippi River, awarded under GSA Contract 47QRAA19D0026 - Order 12FPC320F0105. The objective was to assist the RMA in determining what changes may be needed to existing risk management tools and/or recommend potential new risk management tools for producers farming and insuring corn, cotton, and soybeans in the lower Mississippi River Valley, where frequent flooding prevents timely planting of intended crops. Any recommendations contained herein have been made to simultaneously meet the needs of the affected producers, avoid inefficient use of public funding, and maintain the actuarial soundness of the federal crop insurance program.

Per the requirement of the Food, Conservation, and Energy Act of 2018 (2018 Farm Bill), the stipulations for the order include (emphasis added):

(A) IN GENERAL. —

(i) RESEARCH AND DEVELOPMENT. — *The Corporation shall carry out research and development, or offer to enter into 1 or more contracts with 1 or more qualified persons to carry out research and development, regarding a policy to insure producers of corn, cotton, and soybeans—*

- (I)** *with operations on highly productive batture land within the Lower Mississippi River Valley;*
- (II)** *that have a history of production of not less than 5 years; and*
- (III)** *that have been impacted by more frequent flooding over the past 10 years due to sedimentation or federally constructed engineering improvements.*

(ii) AVAILABILITY OF POLICY. — *Notwithstanding the last sentence of section (a)(1), and section 508(a)(2), the Corporation shall make a policy described in clause (i) available if the requirements of section 508(h) are met.*

(B) RESEARCH AND DEVELOPMENT DESCRIBED. — *Research and development described in subparagraph (A)(i) shall evaluate the feasibility of less cost-prohibitive policies for batture-land producers in high-risk areas, including policies that—*

- (i)** *consider premium rate adjustments;*

- (ii) consider automatic yield exclusion for consecutive-year losses; and*
- (iii) allow for flexibility of final plant dates and prevent plant regulations.*

(C) REPORT. — Not later than 2 years after the date of enactment of the Agriculture Improvement Act of 2018, the Corporation shall submit to the Committee on Agriculture of the House of Representatives and the Committee on Agriculture, Nutrition, and Forestry of the Senate a report that—

- (i) examines whether a version of existing policies may be tailored to provide improved coverage for batture-land producers;*
- (ii) describes the results of the research and development carried out under subparagraphs (A) and (B); and*
- (iii) includes any recommendations with respect to those results.*

The Mississippi Farm Bureau Federation (MFBF) worked in cooperation with AgriLogic to provide remedies to address the issues specified in the order. In recognizing the need to consider enacting any suggested provisions on a pilot program basis in the Mississippi batture land area, which if deemed appropriate, could be expanded to other areas as well, the MFBF offered the specified following recommendations:

- *Item A: Yield Establishment: Because many of these farms have experienced back-to-back floods in the last 10-12 years, their Actual Production History (APH) is so low that purchasing buy-up coverage is of no value to their farm safety net. At the beginning of the pilot program, a fair plug yield, rather than the county transitional yield (T-yield), must be utilized to establish what a yield looks like in a normal production year for the farms in reference. Yields in comparative parishes in Louisiana could be used to establish these “year one” yield expectations.*
- *Item B: Intended Acreage Report on 2-28: For the purposes of prevent plant provisions, we encourage the committee to implement an intended planted acreage report to be submitted by the producer to RMA on February 28 annually. This report will be utilized to determine intended acres for the purposes of prevent plant provisions. This report could be verified and approved by the local county Farm Service Agency Committee to mitigate any moral hazard.*
- *Item C: Adjustments to Prevent Plant Provisions: Due to significant flooding, many of these farms cannot plant the intended crop by February 28 because of the length of time that flood waters persist on the farm. In essence, flood timing and durations have dictated the commodity that the farm can plant, not the commodity market. The cost of lost opportunity is significant for these farms. With that in mind, we recommend that there be consideration of waiving the yield penalty for purposes of prevented planting. Additionally, the waiving of the yield penalty should not impact the producer’s APH negatively in years of continuous floods.*
- *Item D: Trigger Mechanism: Although the farmers in the batture lands have seen excessive*

flooding over the last 10-12 years, they realize not every year is a heavy flood year. We recommend to the committee to establish some high flood year “trigger mechanism” that would then be utilized to “trigger” several of the key provisions listed above (Item C). Objective information like river gauge data could be utilized (i.e.: when the Natchez gauge reaches 48 feet {flood stage}) to “trigger” these “special provisions.”

- *Item E: Moral Hazard: To protect the integrity of the pilot program, we urge the study committee to implement the provisions that were listed in the farm bill report language that requires the farm to have a 5-year history of production (and others if necessary) in this area to prevent moral hazard. The farmers in this area pledge to RMA to work to prevent any moral hazard these provisions may encourage.*
- *Item F: Costs of these Provisions: The farmers in the batture lands realize the challenges with the costs associated with this program. We recommend that all costs for reinsurance under this pilot program be structured through the assigned risk fund at RMA.*

Background

The Lower Mississippi River is defined as that portion of the river between the confluence of the Ohio River and the Gulf of Mexico – the end of a massive system draining more than 40% of the continental United States surface waters (Figure 1). The entire Delta—composed of 2.62 million acres—is a flood-prone region, but the 926,000 acres in the South Delta is a receptacle. Following the Great Flood of 1927, the Flood Control Act of 1928 was enacted authorizing the U.S. Army Corps of Engineers (USACE) to begin work on the Mississippi Rivers and Tributaries (MR&T) project, which was the nation’s first comprehensive flood control system.

Over the last century, as a result of the MR&T project, large multipurpose dams were constructed throughout the larger tributaries of the Mississippi River to capture and store high seasonal precipitation or snowmelt. The purposes for these large dams are varied, but most were intended to reduce downstream infrastructure flooding and release stored water during dry seasons and droughts for irrigation (Hartfield, 2014).

Levees are the backbone of the flood control plan for the MR&T project. The system protects the vast expanse of the developed alluvial valley from periodic overflows of the Mississippi River. The mainstem levee system begins at the head of the alluvial valley at Cape Girardeau, Missouri and continues to Venice, Louisiana, approximately 10 miles above the Head of Passes near the Gulf of Mexico. The MR&T levee system includes 3,787 miles of authorized embankments and floodwalls. Of this number, nearly 2,216 miles are along the mainstem Mississippi River. The remaining levees are backwater, tributary, and floodway levees. In Mississippi, the Delta is protected by a levee system from Memphis, TN to Vicksburg, MS. The hill bluff provides a natural levee to protect the areas from Vicksburg south to Wilkinson County on the Mississippi side of the river (roughly 80 to 90 miles). Additionally, the South Delta contains backwater levees that funnel all greater Delta drainage through the Steele Bayou floodgates into the Mississippi River at Vicksburg.

When the Mississippi River rises, it tends to back into the South Delta, and in response, the USACE closes the Steele Bayou floodgates to ensure the South Delta is not inundated by the rising waters. When the floodgates are closed, the rainfall and drainage generated across the greater Delta land flow south and are trapped because the outlet is blocked during flood stage. In 2019, the backwater reached 98.2 feet, resulting in a historic flooding event—the worst since the backwater levee and drainage structure system was completed in 1978 for this portion of the river. In 2019, 548,000 acres of land remained underwater for five months, including 231,000 acres of cropland which were never planted (Bennett, 2020).



Figure 1. Mississippi River Drainage Basin

Source: National Park Service

Scope

There is an estimated 30,000 to 40,000 acres of active farmland along the Mississippi River that is unprotected by a mainstem levee, known as the Mississippi batture land, much of which has been farmed since the 1800s. In fact, the batture land was being farmed long before the MR&T project was constructed. Although not formally designated by the MR&T project as a floodway, this area has been considered a backwater area (known to be flood-prone) which has recently experienced an increase in frequency and severity of flooding.

The landowners in this area were never offered any level of compensation by the federal government when the property was designated as a backwater area defined by the MR&T plan. Additionally, unlike many other batture lands along the Mississippi River that have mechanisms of flood relief (reservoirs, designated floodways, etc.), this specific area has no means of relief that can be provided within the MR&T management plan in years of excessive flooding. Prior to the last decade, flooding in this area was an infrequent occurrence, and even in flood years, water receded in time for farmers to plant a late soybean crop from mid-June through mid-July and

produce a good crop. However, during the last decade, floods have become more frequent and more severe, with water remaining on the farmland through July and sometimes early August.

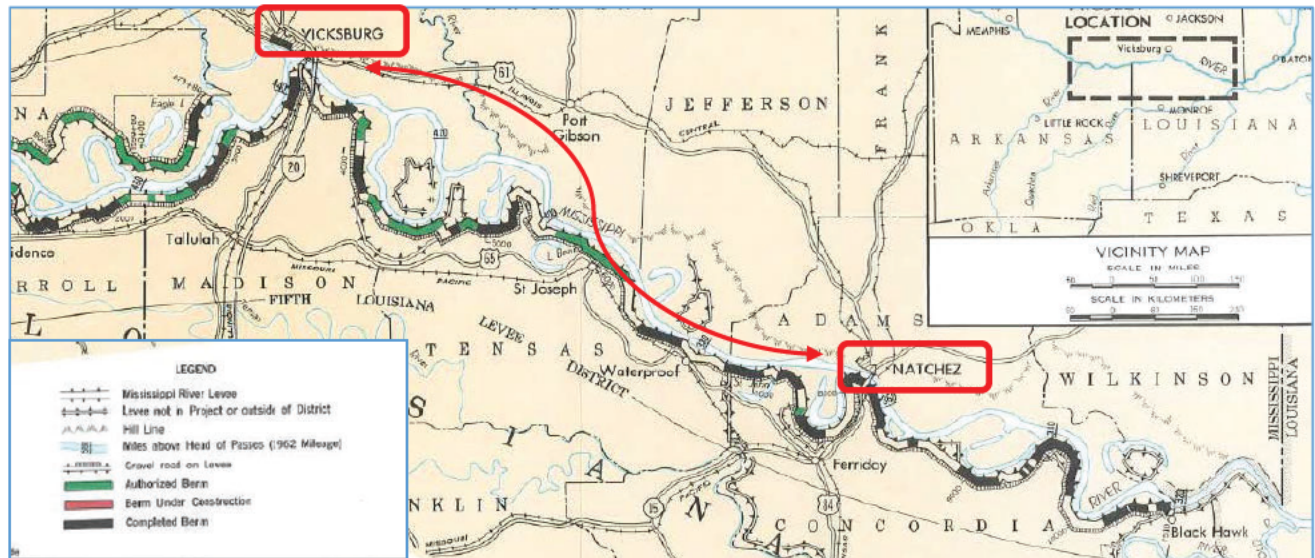


Figure 2. Map of Lower Mississippi Batture Land (Target Area)

Source: MFBF, 2019.

While a corn or cotton/soybean rotation is the preferred cropping practice of most batture land producers, corn is typically prevented from planting due to floods that remain long after the corn late planting period, with second crop soybeans—many times planted after the soybean final planting date—being the only reasonable alternative in recent years due to frequent flooding. Late planted soybeans typically have a lower average yield than soybeans planted prior to the final planting date. Producers have stated that, on average, they expect late planted soybeans to yield 15 to 20 bushels less than that of timely planted soybeans. Additionally, not being able to farm in a preferred rotation also decreases the productive capability of the ground with repeated soybean production. Another issue that arises due to the frequent flooding includes the inability to lock in early seed or other crop-specific input discounts because producers do not know what crop they will be able to plant.

A significant portion of the surrounding acreage has been placed into the Wetlands Reserve Program (WRP). When producers were questioned if this had been considered for the remaining acreage, the insureds indicated that they just want to keep farming the ground. Some producers in these areas are also only renting this land so placing it into the WRP would not provide any meaningful economic assistance.

Since 2017, numerous discussions have been held between the USACE, the Mississippi Secretary of State, and MFBF on behalf of batture land producers to find a solution that would be beneficial to producers wishing to continue farming this land. One suggestion was to modify the flow rates at the Old River Control Structure (which sends 30% of the water from the Mississippi River down the Atchafalaya River) to a higher flow rate (e.g., 35-40%) to alleviate some of the flooding in the area referenced. The USACE maintains that doing so will have little impact on reducing flooding

for the area referenced. The USACE contends that they have not modified their management of the river, but rather, that the amount of precipitation has been above average in the Mississippi River watershed in recent years, with the last 10 years being particularly challenging.

The value of crops produced from the 40,000 acres of agricultural batture land according to the USACE is not enough economic justification to construct levees to protect it. This combined with the disaggregated position of the acreage in question, which is broken up into multiple geographic locations and intersected by multiple tributaries, means that the cost of a properly constructed levee would be prohibitive for the acreage needing flood protection. It would also require the use of soil to construct the levees from a significant portion of the land that the producers are trying to protect. AgriLogic questioned producers about the possibility of constructing private levees; the response was that a producer would need to go through the USACE to gain approval and such construction would also be cost prohibitive. Adding further complication, a significant portion of the land is rented. Producers also pointed out that with cash leases the producer is responsible for making the cash payment whether a crop is produced or not, another reason they are so passionate to find a solution.

The scope of this study examines the impact that Mississippi River flooding has had on corn, cotton, and soybean producers farming batture land in the lower Mississippi River Valley, specifically over the last decade. While the task order included seven counties in its scope, four in Mississippi and three in Louisiana, the MFBF has identified the primary region of concern as the area around and between the Mississippi cities of Vicksburg and Natchez, specifically on acreage located between the Mississippi River and the bluff on the Mississippi side of the river where there are no USACE levees. According to producers in this area, the land on the Mississippi side of the river is 10 feet higher on average than the adjacent land on the Louisiana side of the river, which does not typically flood because it has levees. In fact, there is very little acreage in production on the Louisiana side of the river that is not protected by a USACE levee. Based on this information, coupled with discussions with stakeholders, AgriLogic has focused its analysis and subsequent recommendations to Warren, Claiborne, Jefferson, and Adams Counties in Mississippi.

ISSUES AND ANALYSIS

Annual Precipitation Changes as a Cause of Increased Flooding

Although the issues of changes in the river structure and sedimentation buildup are beyond the scope of this report, understanding environmental and weather patterns are necessary to put the exposure for providing crop insurance on this acreage into context. In other words, the risk of insuring crops in these locations has increased due to the frequency of flooding caused by current weather cycles. When considering the vast area that includes the Mississippi River Basin, the area of influence is not limited to land around these counties since a large portion of the country falls within the watershed that eventually drains into the Mississippi river (Figure 1).

As such, rainfall amounts in locations far from farmland bordering the Mississippi play a role in determining the amount of water that eventually flows past or over the land. A study conducted by the National Weather Service (NWS) in March 2019 examined changes in rainfall patterns across the Mississippi River Basin and found that essentially the entire area has seen greater annual precipitation amounts in recent years when compared against the long-term historical average, as shown in Figure 3. Evaluations of this comparison on a seasonal basis highlighted this increase in precipitation (Figure 4), particularly from spring rainfall in the Midwest that greatly contributes to flooding downstream during the typical planting period.

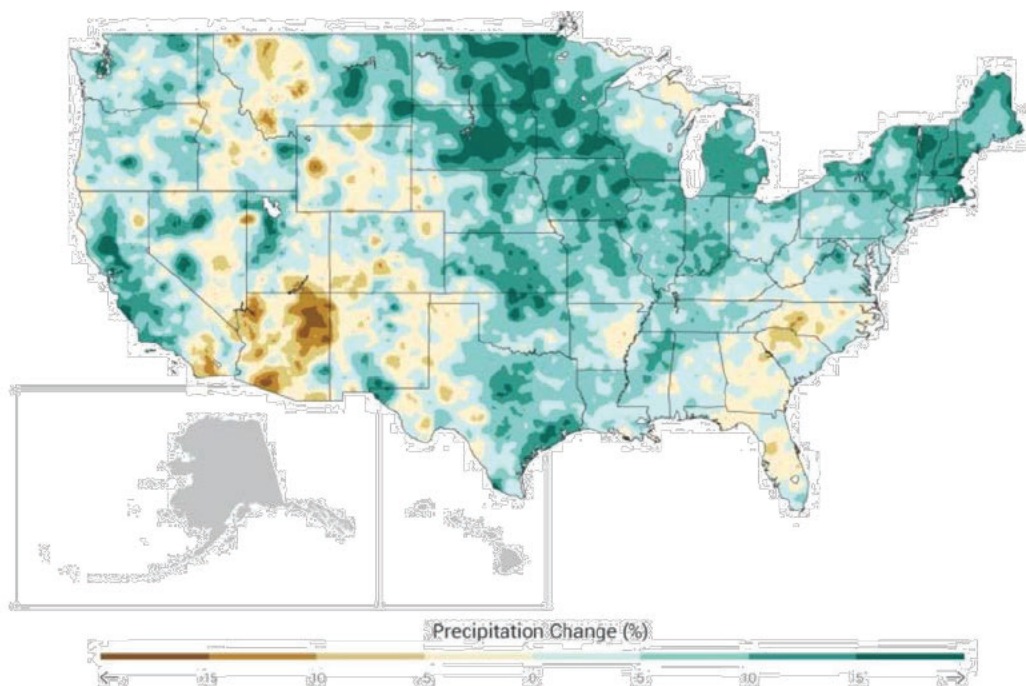


Figure 3. Increase in Annual Precipitation for 1966 to 2015 Period versus 1901 to 2015 Averages (Frederick, 2019)

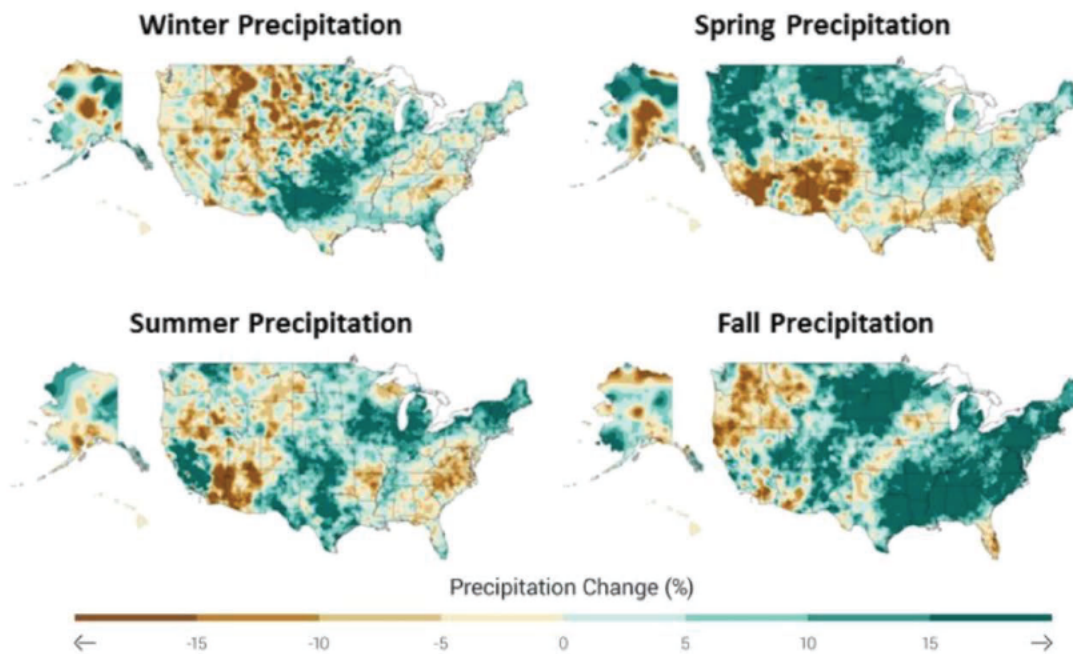


Figure 4. Seasonal Changes in Precipitation for 1966 to 2015 Period versus 1901 to 2015 Averages (Frederick, 2019)

Beyond the research conducted by the NWS, AgriLogic conducted an independent investigation in precipitation patterns in the Mississippi River watershed and the corresponding river gauge readings. Our analysis supported these claims, as demonstrated in Figure 5, using daily gridded rainfall data obtained from the National Oceanic and Atmospheric Administration (NOAA) for the continental U.S. for precipitation that fell within the watershed from 1948 through 2020. The data of interest was restricted to the months leading up and during the planting of summer crop production. In examining the average total precipitation amounts for the first six months of the year, indications are that during the most recent 10-year period, beginning in 2011, the area experienced a significantly greater amount of rainfall compared to previous decades. Consequently, there has been an increase in the number of years and duration during the year that the Mississippi River exceeded the flood stage thresholds. When the data are observed in 10-year increments, a cyclical pattern is evident.

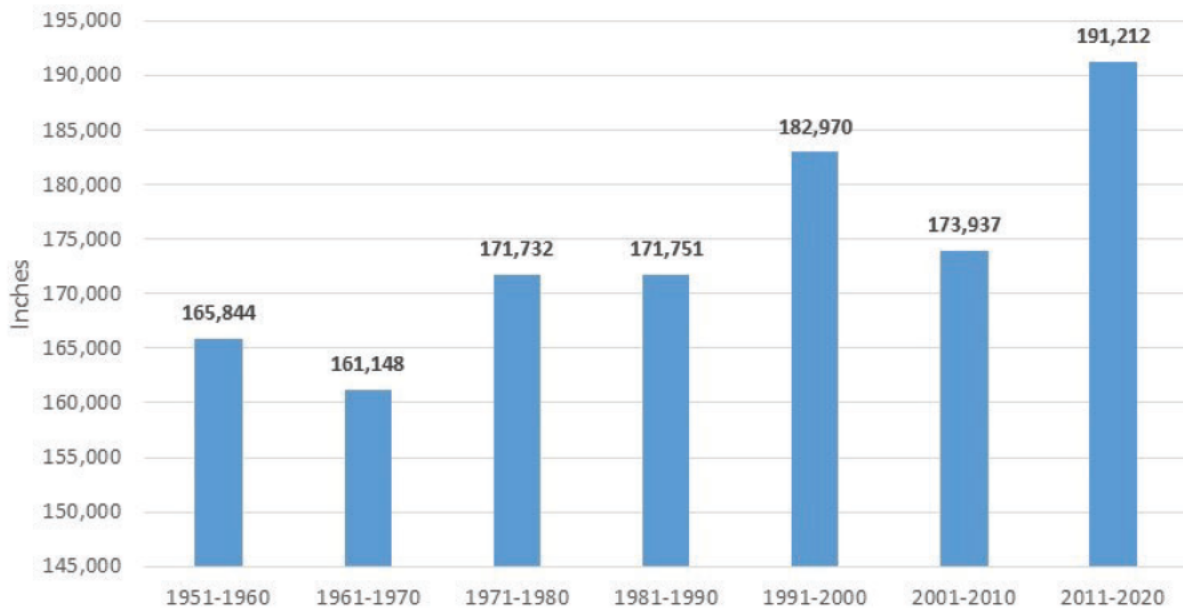


Figure 5. MS River Watershed Jan-Jun Mean Total Precipitation 10-Year Increments (Inches)

The river gauge readings as reported by the NWS at Vicksburg, MS and Natchez, MS were also obtained and analyzed from 1961 to 2020. These readings are commonly used by the USACE and insureds for monitoring the river conditions. Measurements of 43 feet at Vicksburg and 48 feet at Natchez serve as qualifiers of significant flooding for our analysis and recommendations. The individual flood stages for each location are provided in Figure 6 and Figure 7, respectively. These are the thresholds for evaluating when flooding begins and to what extent. Some farms begin to experience flooding at lower heights than these, while others would not encounter flooding until a higher river height is reached. However, these respective heights were generally accepted by the parties involved as a sound benchmark for flood designation in that over 50% of the batture acreage is flooded at these thresholds.

Flood Categories (in feet)	
Major Flood Stage:	50
Moderate Flood Stage:	46
Flood Stage:	43
Action Stage:	35

Figure 6. NWS Flood Categories at Vicksburg

Flood Categories (in feet)	
Major Flood Stage:	57
Moderate Flood Stage:	51
Flood Stage:	48
Action Stage:	38

Figure 7. NWS Flood Categories at Natchez

As expected, when analyzing the historical rainfall patterns, the number of years that reached flood stage during the planting period of March through June highly correlates to rainfall amounts. The frequency of flooding by decade at the two river gauges is provided in Figure 8 and Figure 10. There is a notable increase in the percentage of flooded years for the most recent period compared to previous cycles. Of greater interest is the significant rise in the length of time the river remained above flood stage from 2011 through 2020. During this period, the Vicksburg measurement was above 43 feet on average 36.7 days per year (Figure 9) while the river measured above 48 feet for an annual average of 49 days at the Natchez gauge (Figure 11). When only accounting for years that experienced any days of flooding, the length of time increased to 45.9 days for Vicksburg and 61.3 days on average for Natchez.

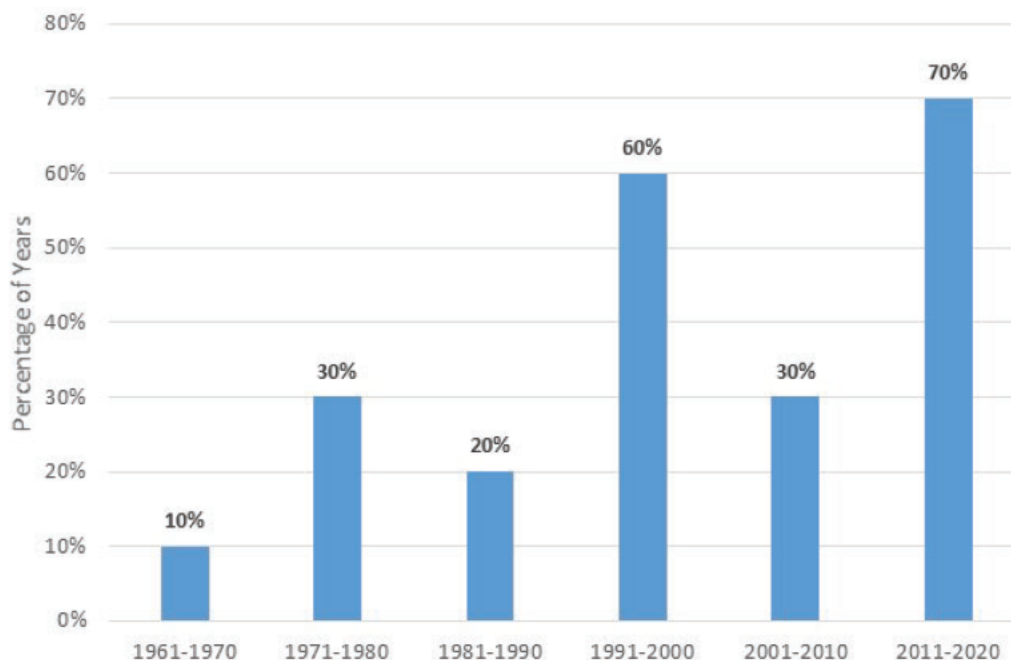


Figure 8. Percent of Years Flood Stage Reached (March-June) – Vicksburg

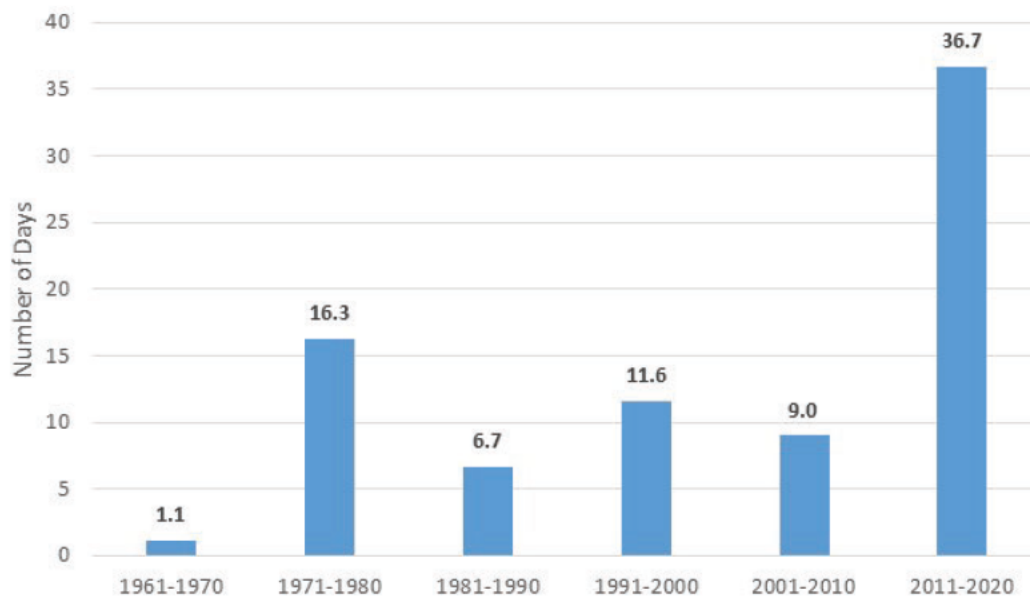


Figure 9. Average Flooded Days per Year (March-June) - Vicksburg

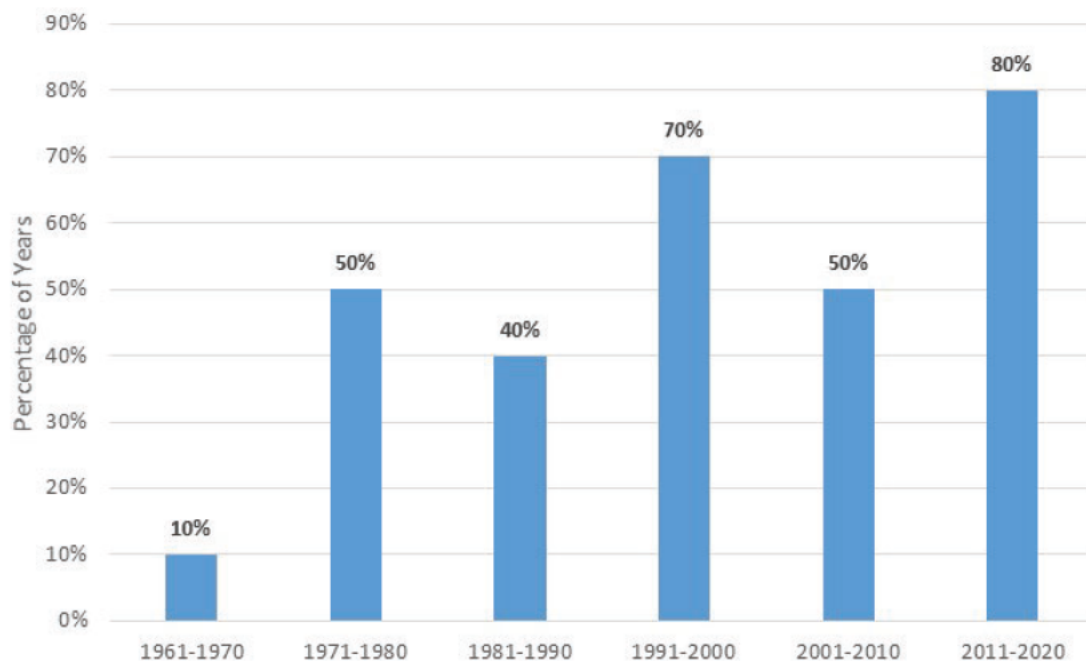


Figure 10. Percent of Years Flood Stage Reached (March-June) - Natchez

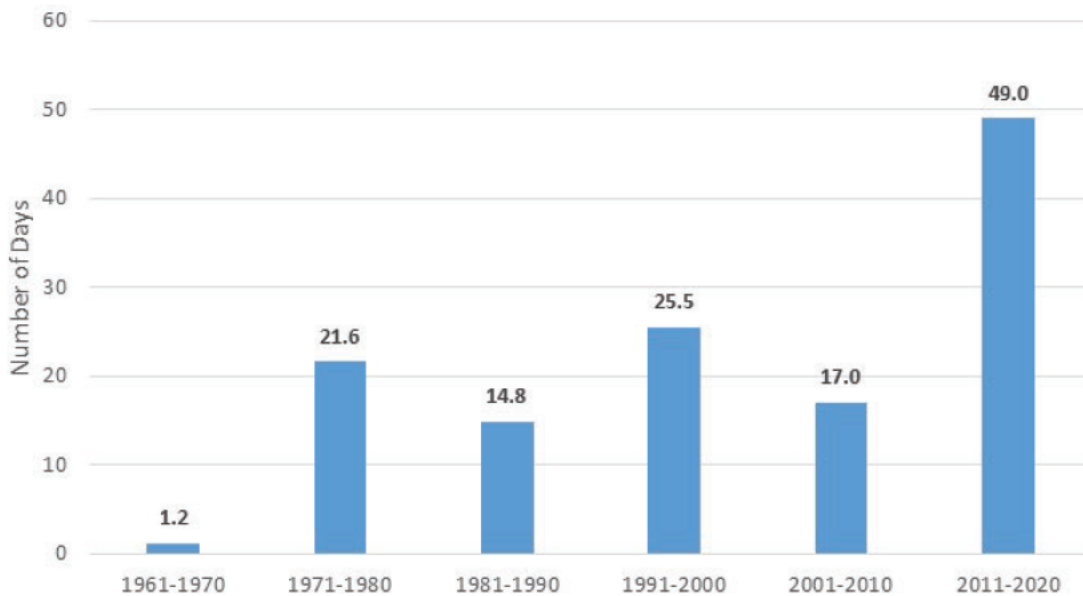


Figure 11. Average Flooded Days per Year (March-June) – Natchez

In summary, there is an identifiable upward trend in frequency coupled with a cyclical pattern in the precipitation. The grouping of 10-year increments reveals this pattern. There are several known weather patterns that are on a similar interval that could contribute to this scenario.

High-Risk Rate Review and Comparison to Adjacent Louisiana Parishes

Comments were made during listening sessions that land across the river in Louisiana is of similar quality but has the substantial advantage of being protected by the levee system. As a result, the protected acreage on the Louisiana side with comparable soil types maintains higher approved yields and lower premium rates due to less frequent flooding because of the levee system. Our analysis of this situation began with a comparison of the ten-year average transitional yields for Mississippi counties relative to the same for the Louisiana counties (parishes) immediately across the Mississippi River in Table 1. The results illustrate that while there are definite differences in values, particularly in the more southern areas, they likely are not unreasonable considering the influence that flood events have had on the yield history for the batture acreage.

Table 1. Ten-Year Average Transitional Yields

Transitional Yields				
Crop	Type	MADISON, LA		WARREN, MS
Corn	Grain 016	Non-Irrigated 003		
		108	117	
Soybeans	No Type Specified 997	NFAC (Non-Irrigated) 053		
		31	33	
Cotton	No Type Specified 997	Non-Irrigated 003		
		721	721	
Transitional Yields				
Crop	Type	TENSAS, LA	CLAIBORNE, MS	JEFFERSON, MS
Corn	Grain 016	Non-Irrigated 003		
		115	118	95
Soybeans	No Type Specified 997	NFAC (Non-Irrigated) 053		
		33	27	30
Cotton	No Type Specified 997	Non-Irrigated 003		
		789	736	652
Transitional Yields				
Crop	Type	CONCORDIA, LA		ADAMS, MS
Corn	Grain 016	Non-Irrigated 003		
		106	99	
Soybeans	No Type Specified 997	NFAC (Non-Irrigated) 053		
		30	30	
Cotton	No Type Specified 997	Non-Irrigated 003		
		743	723	

Regarding an analysis of rates, the batture land under consideration is largely rated high-risk (AAA) by the Jackson, Mississippi RMA Regional Office (RO), and producers face elevated crop insurance premium costs for coverage that is reflective of the crop production risk associated with the area. The higher premium cost is not practical or cost effective for producers in many cases and results in producers purchasing minimal levels of crop insurance coverage, as depicted in Figure 12.

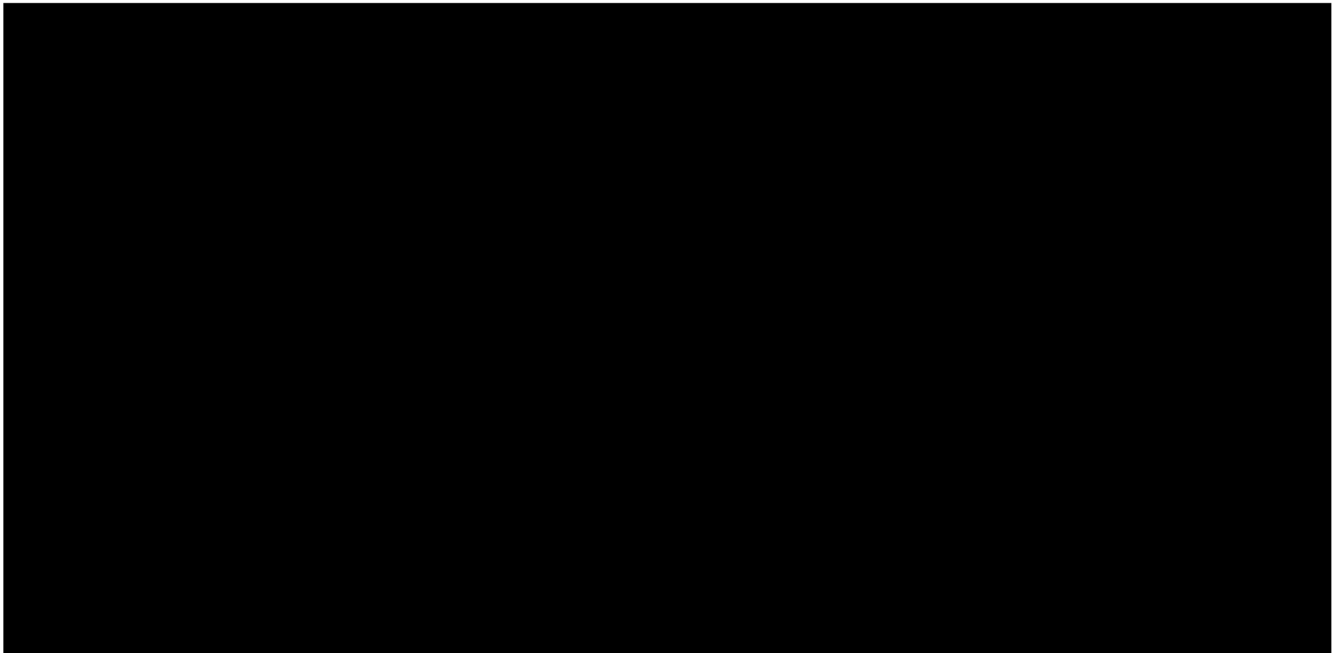


Figure 12. 2001-2019 Coverage Level Elections for High-risk Acreage in the Four MS Counties

Lower coverage participation due to higher assessed rates is not an unexpected result since the average rate for high-risk land in these counties can be over five times the standard rate at certain coverage levels. Results depicted in Table 2 illustrate the substantial difference between average earned premium rates for standard and high-risk growers over the observed period. In fact, the relationship between standard and high-risk rates in the area has widened over the last nineteen years as flood events have triggered frequent claims in the high-risk areas.

Table 2. Average Total Earned Premium Rates 2001-2019, MS Counties

Average Premium Rate					
Standard-Corn	Standard-Cotton	Standard-Soybeans	AAA-Corn	AAA-Cotton	AAA-Soybeans
9%	8%	11%	35%	31%	22%

Given the frequency and duration of the flooding in the batture land area, it is reasonable to conclude that the farmland and crops in these counties are at higher risk and more susceptible to hazardous growing conditions or the prevention of planting all together. Logically, this leads to higher frequencies of insurable losses and thus higher premium rates to help offset those losses. The indemnities paid in the area are largely driven by crop loss or prevented planting because of flood or excess precipitation. Since 2001, 96% of all indemnities paid on high-risk ground have been a result of these causes of loss, as demonstrated in Figure 13.

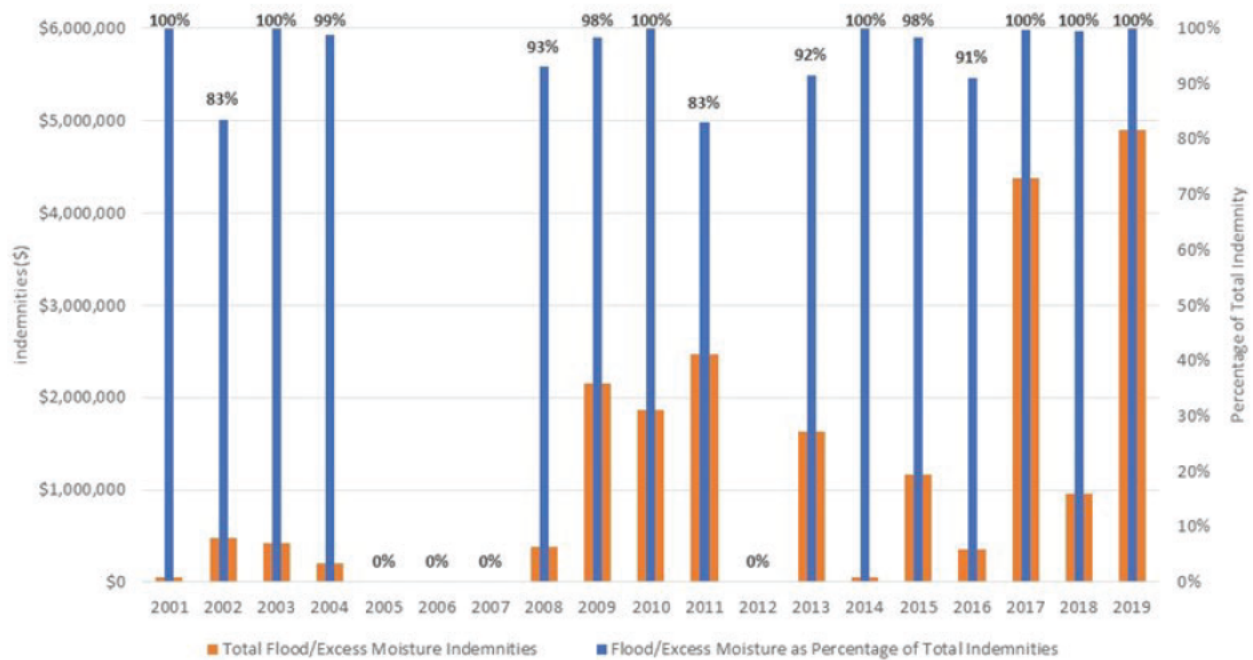


Figure 13. Flood/Excess Precipitation Indemnities 2001-2019 in the Four MS Counties

The significantly higher rates are not unwarranted from an actuarial perspective. Examining the Loss Ratio (LR) which is total premium relative to the indemnities paid to producers for both the standard and high-risk land from 2001 through 2019 in the four counties of interest reveals that the ten-year moving average is generally in line with the USDA mandated LR of 1.00. The premium rates for the high-risk acreage demonstrated a slightly higher LR than for the standard acreage but are not out-of-line with expectations for the program when credibility metrics are considered. Figures 14 through 16 illustrate the actual mean LR over the 2001 to 2019 period for high-risk acreage was 0.79 for corn, 0.85 for cotton, and 0.66 for soybeans. These are less than the 1.00 target, but when changes to premium rates over that same period are considered, the average LR is closer to the targeted level. When credibility weighting of county-level practice specific experience is considered in the context of the adopted USDA RMA premium rating methodology, the current premium rates are not beyond the range of expectations.

The standard risk premium rates in this area have tended to decrease since 2001 at a more rapid rate than have the high-risk additive premium rates. As a result, the high-risk additive rates have become a larger portion of the overall premium collected in these areas. Given the frequency of significant loss events in the high-risk areas in recent years, AgriLogic would not recommend a significant realignment of premium rates for the locations in question beyond some minor refinements which could be implemented to more rapidly adjust expectations in the high-risk areas closer to 1.00.

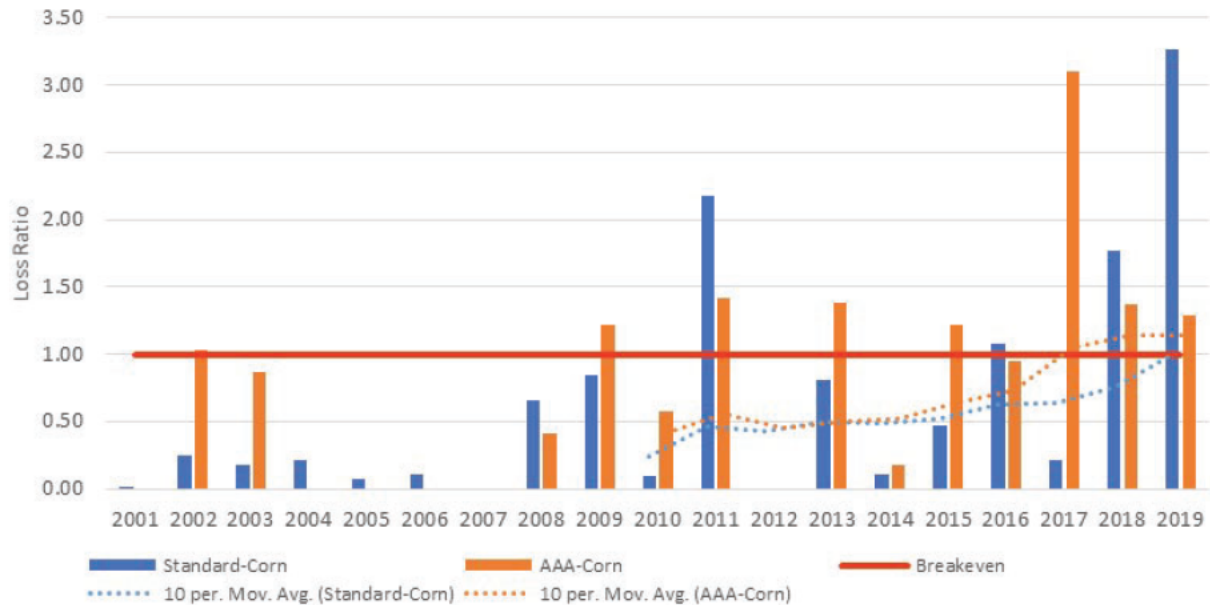


Figure 14. 2001-2019 Loss Ratios – Corn in the Four MS Counties

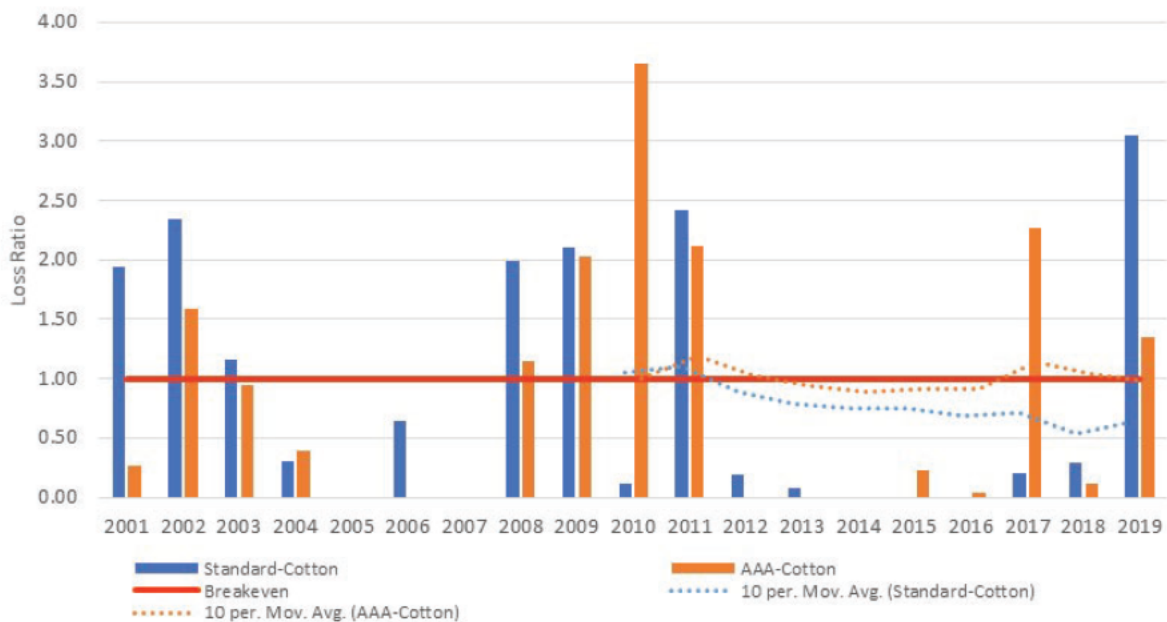


Figure 15. 2001-2019 Loss Ratios – Cotton in the Four MS Counties

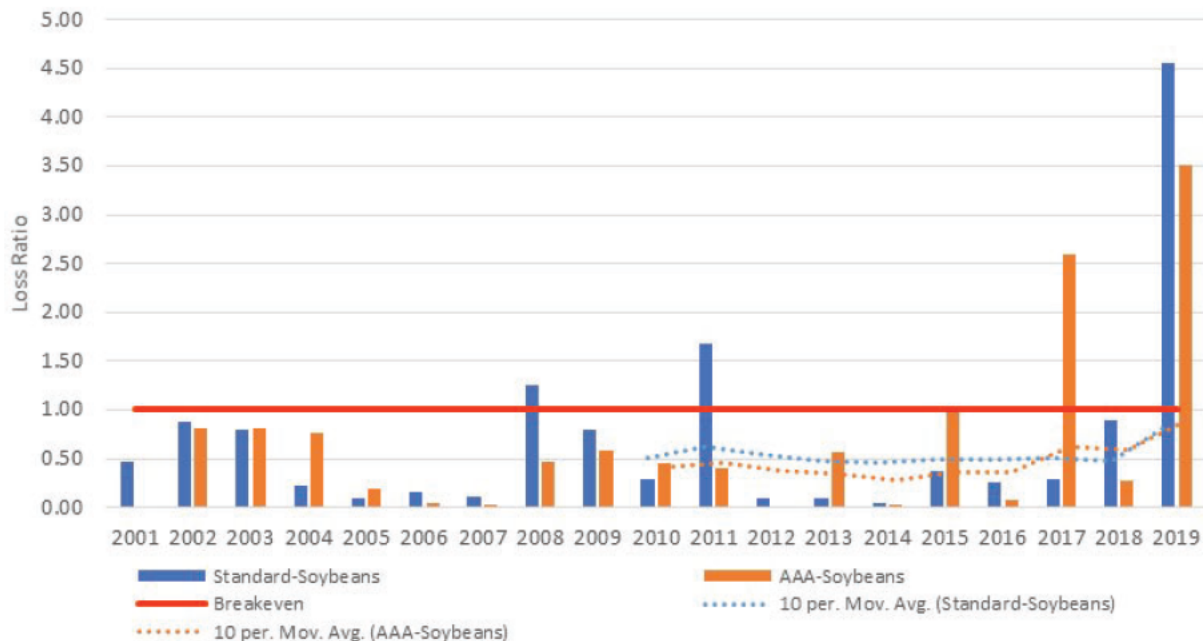
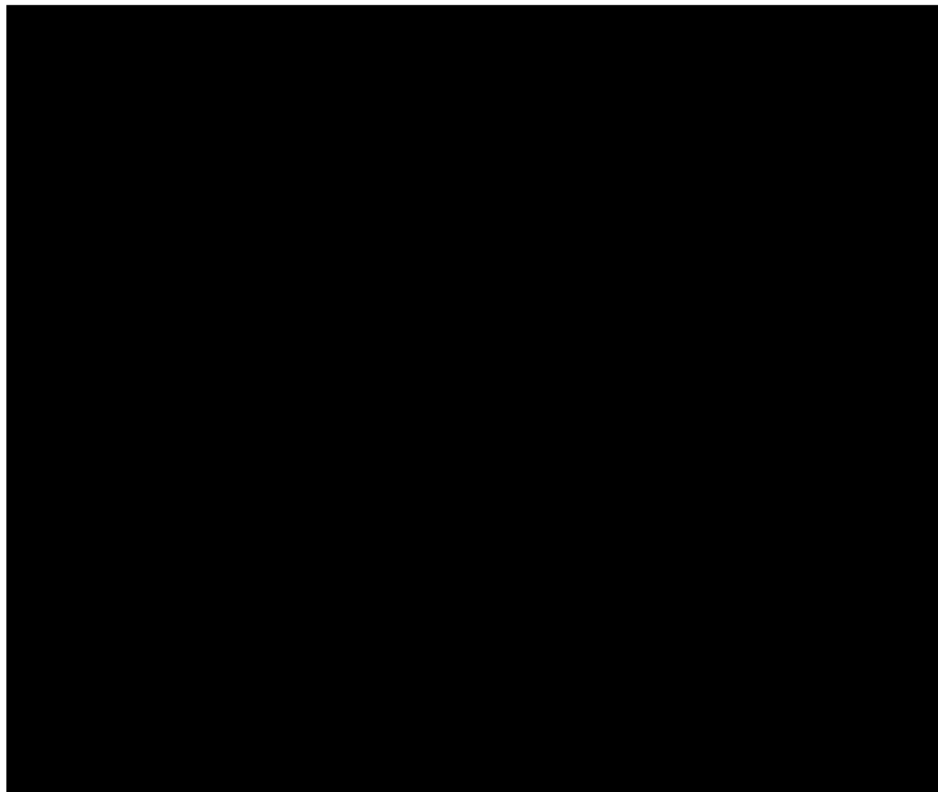


Figure 16. 2001-2019 Loss Ratios – Soybeans in the Four MS Counties

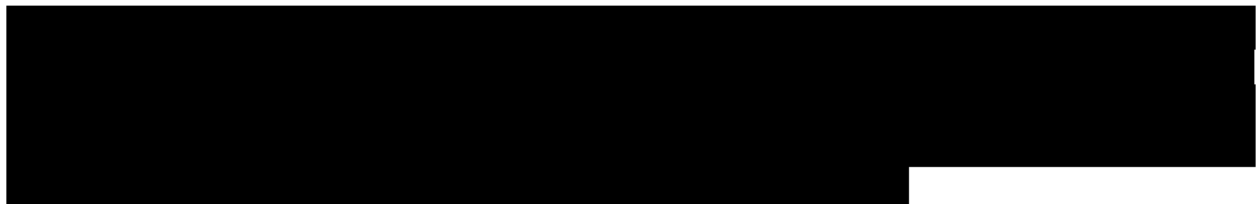
Accuracy of High-Risk Land Maps

RMA uses actuarial maps for crop insurance purposes to designate high-risk areas due to factors such as flooding or highly erodible soil. The maps are used in developing insurance premium rates and validating areas of reported claims. According to RMA, most of these maps identify flood-prone land. Historically, boundaries have been set along roads, levees, or bluffs, but more recent determinations have used land elevation, river gauge data, and satellite imagery in the development of the maps. High-risk maps in batture land counties were last updated in August 2008 for Adams and Warren Counties and April 2013 for Claiborne and Jefferson Counties. It has been indicated that modern satellite imagery has not yet been incorporated for the maps for these counties given the dates of the most recent updates (Jackson RO, 2020). Even so, producers and insurers believe the high-risk maps are generally accurate in most areas. There are a few areas identified under the AAA designation that have not experienced the widespread flooding for at least a reasonable portion of the acreage. The circled fields in Figure 17 represent land in Jefferson County, MS that falls into this classification because of its elevation from the river along the bluff according to producers in the area. In these instances, it was recommended that producers submit requests to have their insurable units and the corresponding premium rates reviewed and reduced through a written agreement rate adjustment.



Written Agreements to Request an Actuarial Change

Batture land producers can currently submit a “Request for Actuarial Change” to the Jackson RO through their crop insurance agent. This request, if approved by the insured’s approved insurance provider, starts the RMA Jackson RO’s review of the land in question along with current flood stage data. Upon review, the Jackson RO determines whether the land should be assigned the standard rate for the county, an additive rate (determined based on current flood stage data), or to deny the request, which assigns that land the high-risk rate published on the actuarial documents for the AAA area.



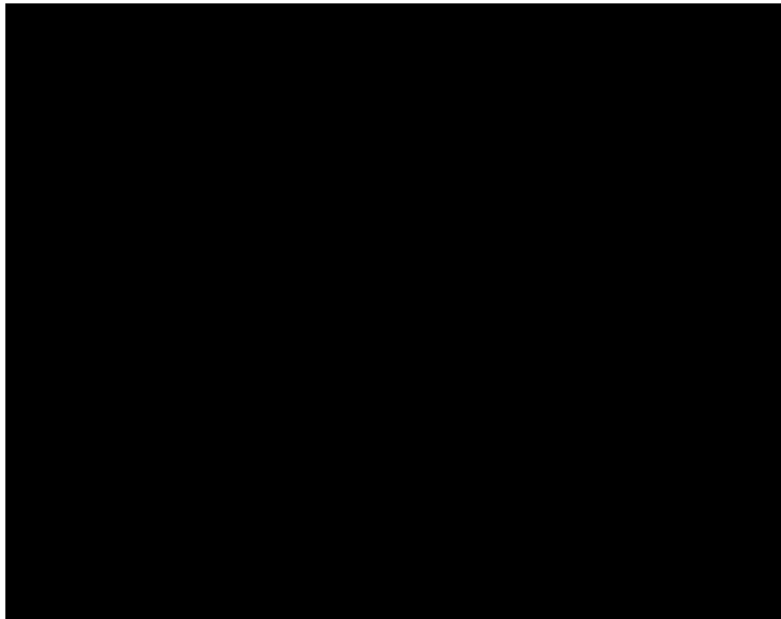


Figure 18. Warren County Written Agreement # 1

Source: Jackson Regional Office, 2020.

Notes provided by Jackson RO: 29 fields, all receiving additive rates since 2016. The Vicksburg gauge is located between these properties, with about 1/2 of the fields to the north of the gauge, and 1/2 to the south of the gauge. Flooding clearly happens on this land. Approve with same rates as 2019 Corn (.24), Cotton (.13) and Soybeans (Std).

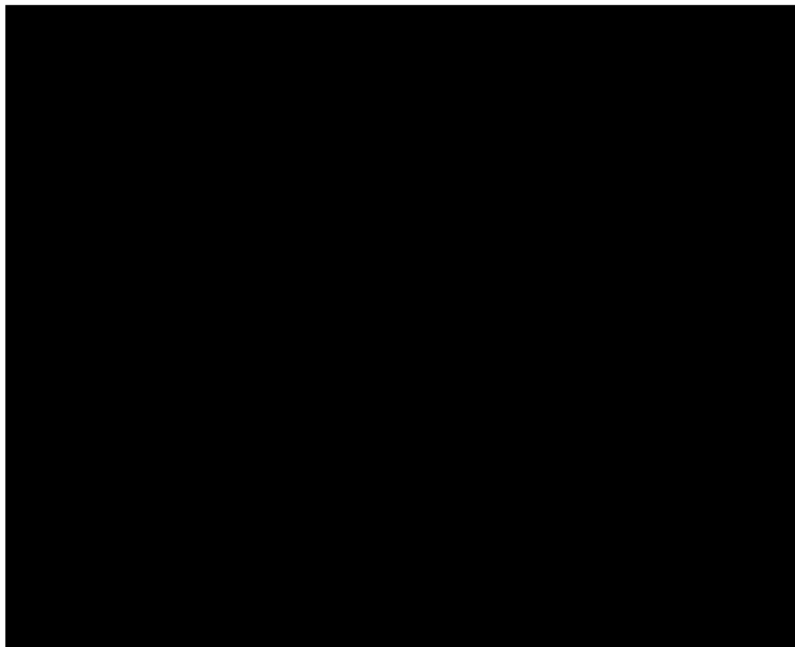


Figure 19. Warren County Written Agreement # 2

Source: Jackson Regional Office, 2020.

Notes provided by Jackson RO: Approve 2 fields at Std rates, 2 fields at additive rates, and 2 fields denied. New HR Request "for standard or reduced premium" for NI Corn, Cotton, and Soybeans in Warren Co, MS

DENY for ALL CROPS-FSN1089 TN46 F4, 6 are 100% flooded at 41.07ft (1-7-2019), which provides an offer of Corn (.49), Cotton (.44) and Soybeans (.23)-well above the AAA rate.

APPROVE with ADD RATES OF Corn (.34), Cotton (.29) and Soybeans (.15)-FSN1089 TN46 F2, 5 are 50% flooded at 43.1ft and more than 75% flooded at 43.23ft (3-20-2016)-44.28, and 100% flooded at 46.29ft-Used 43.23ft for calculations.

APPROVE with STD rates for Corn, Cotton, Soybeans-FSN1089 TN46 F1, 3 are 50% flooded at 49.21ft calculates to Corn (.07), Cotton (.05), Soybeans (.03), 50% of which would be Std rates for all crops.

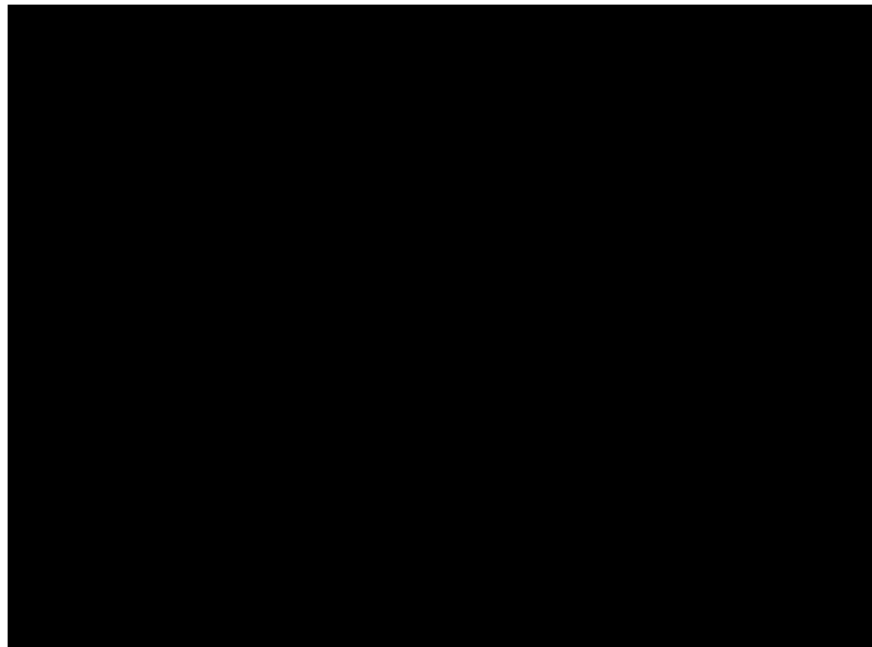


Figure 20. Claiborne County Written Agreement

Source: Jackson Regional Office, 2020.

Notes provided by Jackson RO: Renewal HR Request for Corn, Cotton, Peanuts and Soybeans in Claiborne Co, MS. Approve same as in 2019 with corn (.207), cotton and peanuts (.135), Soybeans (std). Land located off the Bayou Pierre and the Mississippi River. Losses and flooding support maintaining prior assessment.

As can be seen in the written agreement notes below each figure, some of the rate adjustments have been denied due to the calculated rate being higher than the published AAA rate. Conversations with producers in Adams and Jefferson Counties resulted in the knowledge that written agreements in those counties are not typically sought since the likelihood of receiving an approved rate less than the published AAA rate is highly unlikely and is typically denied. The

administrative burden of seeking to gain a rate adjustment has not proven to be worth the effort in recent years and producers do not typically apply.

These actuarial rate change requests are typically submitted on an annual basis, with renewal submissions often allowed in the years following an original submission. During the listening sessions, a discussion was held as to why multi-year written agreements were not being employed more regularly. Multi-year written agreements are authorized for high-risk (HR) land in section 34(B) of the Written Agreement Handbook and would allow an approved written agreement or rate to be pre-approved for up to three years, eliminating the need for producers to apply annually, which can significantly ease administrative burden and allow producers to incorporate known premium costs into their future farm planning.

AgriLogic contacted the Jackson RO to inquire as to why multi-year written agreements were not being regularly approved, as well as to inquire why more producers were not attempting to gain better rates through the written agreement process in general, specifically those in the southern counties of Jefferson and Adams. The Jackson RO stated that they will not approve a better rate than the AAA rate when fields are 100% flooded, which is why there are not more written agreements currently in force. The Jackson RO also clarified that multi-year written agreements are issued if certain underwriting guidelines are met; specifically, that the land has been approved for the standard rate in the last four consecutive years. Additionally, the approval of a multi-year written agreement is not guaranteed, and the land will continue to be reviewed for losses during the assigned multi-years.

Yield Exclusion Option at the County vs. High-Risk Area Level

Current provisions allow for an actual yield to be excluded from a producer's actual production history (APH) when it is determined that a county yield for a crop year is at least 50% below the 10-year simple average yield for that crop in the county. However, with the unique geographic characteristics of the program counties, flooding does not affect all areas within the county equally.

River stage heights equivalent to the current flood stage designations are measured by the USACE at stations in Vicksburg and Natchez. These could be used as a qualifying factor in determining the eligibility of a crop year to be excluded from producers' APHs when calculating their approved yields for high-risk land. The option to exclude flood years from the calculation of the approved yields for high-risk land could serve as a useful mechanism for supporting yield guarantees while an effective coverage level calculation could be used for dynamically adjusting premium rates to align with the insured's elections and in turn the corresponding exposure to risk. Flood stage is established when the river gauge at Vicksburg measures 43 feet or the gauge at Natchez measures 48 feet.

The number of years that would have triggered as high-risk yield exclusion years relative to the years currently offered for the county-crop combination under the standard county-level yield exclusion option are presented in Table 3. The flood stage at Vicksburg would be used as the trigger

for the northern two counties, while the station at Natchez would be used for the southern two counties. The flood stage thresholds for the respective areas indicate a point at which an excess of 50% of the insurable AAA acreage would be flooding during the crucial time period in the summer crop growing season. These would result in a drastically reduced yield observation for the insureds in the areas of interest. Therefore, the opportunity to drop these observations from their APH yield history for purposes of establishing their approved yield would significantly enhance their capability to maintain a meaningful yield guarantee.

Table 3. Number of Years for County Exclusion versus High Risk (AAA) Flood Exclusion, 1995-2019

County Name	Commodity Name	Irrigation Practice	River Gauge Station	Number of County Excluded Years	Percentage of Years Eligible for County Exclusion	Number of AAA Excluded Years	Percentage of Years Eligible for AAA Exclusion
Warren	Corn	Non-Irr.	Vicksburg	3	12%	12	48%
Claiborne	Corn	Non-Irr.	Vicksburg	5	19%	12	48%
Jefferson	Corn	Non-Irr.	Natchez	4	15%	15	60%
Adams	Corn	Non-Irr.	Natchez	5	19%	15	60%
Warren	Cotton	Non-Irr.	Vicksburg	2	8%	11	44%
Claiborne	Cotton	Non-Irr.	Vicksburg	7	27%	11	44%
Jefferson	Cotton	Non-Irr.	Natchez	7	27%	14	56%
Adams	Cotton	Non-Irr.	Natchez	8	31%	14	56%
Warren	Soybeans	Non-Irr.	Vicksburg	0	0%	8	32%
Claiborne	Soybeans	Non-Irr.	Vicksburg	1	4%	8	32%
Jefferson	Soybeans	Non-Irr.	Natchez	1	4%	9	36%
Adams	Soybeans	Non-Irr.	Natchez	3	12%	9	36%

Prevented Planting Yield Penalty

Prevented planting is the failure to plant an insured crop due to an insured cause of loss by the final planting date designated in the insurance policy's Special Provisions or during the late planting period, if applicable. For producers farming on batture lands, there are several options from which to choose:

1. Plant the insured crop during the late planting period, which is generally 25 days after the final planting date. The timely planted production guarantee is reduced 1% per day for each day planting is delayed after the final planting date.
2. Plant the insured crop after the late planting period in which case the producer does not receive a prevented planting payment for the insured crop. The producer may choose either to: (a) not insure the crop; or (b) insure the crop with the production guarantee reduced to the prevented planting coverage level;
3. Leave the acreage idle and receive a full prevented planting payment; or
4. Plant a second crop after the first crop's late planting period. The producer will receive a prevented planting payment on the first crop equal to 35% of the prevented planting guarantee; the premium is also reduced to align with the indemnifiable liability.

In addition to the reduction of the prevented planting payment, if the producer chooses to plant a second crop (e.g. soybeans) on the same acreage during the same crop year after the late planting period (item 4 above), and the acreage does not qualify for double crop, the insured will receive a yield equal to 60% of the approved yield as the actual yield observation to be entered into the insured's APH database for the crop year for the first insured crop (e.g. corn or cotton) on the prevented planting acreage. This will reduce the insured's approved yield for subsequent crop years on this acreage.

Producers farming in batture lands will typically prefer to plant corn most years if conditions allow. When markets are conducive, they may also opt to plant cotton. If the producers are unable to plant corn or cotton due to flooding that persists beyond the late planting period for these crops, (a frequent occurrence over the last decade) soybeans are the second-tier crop of choice. In this case, producers have one of two options: (1) Leave the acreage idle and receive a full prevented planting payment, or (2) plant a second crop (e.g., soybeans) after the late planting period of the first insured crop and receive a reduction on their approved yield for the first crop in subsequent crop years. Producers have stated they prefer to plant a second crop as opposed to leave the land idle since they just want to farm. They believe they are being penalized twice if they choose to do so, by first receiving a lower prevented planting payment and secondly reducing their guarantee for future years on the first crop. They understand and agree with the reduced payment but question the need for their approved yield being reduced for future subsequent crop years on the first crop. With the reduction taken to the first crop's approved yield in subsequent crop years, they would often be better off taking the full prevented planting payment and leaving the acreage idle for the current crop year.

Late-Planted Soybeans

Roughly 92% of soybean policies with high-risk (AAA) acreage were non-irrigated and planted as not following another crop (NFAC) between 2011 and 2019 in Adams, Claiborne, Jefferson, and Warren Counties. The current final planting date for NFAC soybeans in these counties is June 15 with a late planting period ending July 10, with reductions in the insured's approved yield ascribed every day between June 16 and July 10. In recent years, extended flooding in the area has caused a noteworthy number of instances in which planting has been delayed well after the final planting date, as depicted in Table 4.

Table 4. Typical Planting Dates for Soybeans on High-Risk Batture Land

High-Risk (AAA) Policies	Early Planted Practice (By June 15th)		Late Planted Practice (After June 15th)	
	Percent of Total Policies	Average Plant Date	Percent of Total Policies	Average Plant Date
2001	98%	10-May	2%	22-Jun
2002	49%	11-Apr	51%	30-Jun
2003	44%	24-Apr	56%	24-Jun
2004	93%	5-May	7%	27-Jun
2005	100%	8-May	0%	-
2006	98%	4-May	3%	25-Jun
2007	100%	6-May	0%	-
2008	58%	5-May	42%	27-Jun
2009	43%	12-May	57%	26-Jun
2010	82%	24-May	18%	21-Jun
2011	16%	23-Apr	84%	27-Jun
2012	100%	4-May	0%	-
2013	62%	3-Jun	38%	30-Jun
2014	89%	10-May	11%	29-Jun
2015	98%	21-May	2%	18-Jun
2016	91%	19-May	9%	22-Jun
2017	43%	26-Apr	57%	1-Jul
2018	97%	20-May	3%	27-Jun
2019	67%	31-May	33%	6-Jul
2001-2019 Avg	75%	14-May	25%	28-Jun

This later planting typically results in reduced yields and has begun to skew producer's approved yields below a level that would be reasonably expected if the crop were able to be planted earlier. The frequency of each proposed practice in the Mississippi counties is also exhibited in Figure 21.

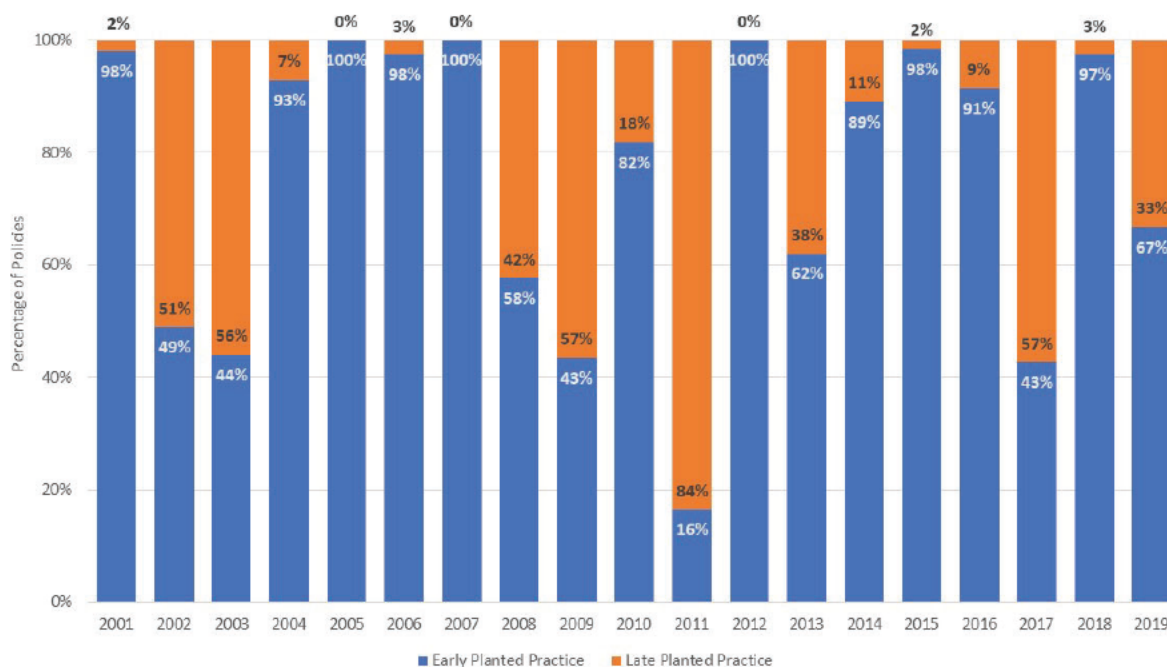


Figure 21. Percent of Soybean Policies by Planting Period 2001-2019

The segregation of the early and late planted NFAC soybeans into two separate databases given the frequency of crops being planted after the final plant date for NFAC would provide insureds with a more representative insurance guarantee for the insurable type. It would also reduce the complications of applying a generalized procedure intended for an infrequent occurrence to databases that are largely constructed on late planted yields in many instances. This approach would enable insureds to align the coverage more appropriately with their actual exposure and expectations.

High-Risk Alternative Coverage Endorsement (HR-ACE)

The High-Risk Alternative Coverage Endorsement (HR-ACE) is an endorsement to the Common Crop Insurance Policy (Basic Provisions) and applicable Crop Provisions that provides more options to producers who farm both high-risk and non-high-risk land. The HR-ACE was created to allow producers farming on high-risk ground to split their high-risk land and non-high-risk land into two separate policies. When a HR-ACE is elected on a policy containing high-risk and non-high-risk land, two additional coverage policies are created – one insuring the high-risk land and one insuring the non-high-risk land. The coverage under the HR-ACE must be of a lower coverage than under the base policy but higher than the Catastrophic Risk Protection (CAT) level. The HR-ACE may be elected with yield protection (YP), revenue protection (RP), and revenue protection with harvest price exclusion (RP-HPE). The HR-ACE requires separate acreage and production reports, as well as production records for the high-risk land covered by the HR-ACE and the non-high-risk land covered by the base policy. Without the HR-ACE endorsement, when the producer

elects the High-Risk Land Exclusion Option, the producer's high-risk land cannot be insured at a different additional coverage level. Under this option the high-risk land can be insured only at CAT or not insured at all. The HR-ACE is available for corn, soybeans, wheat, and grain sorghum in counties with a high-risk classification in Arkansas, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Mississippi, Missouri, Nebraska (certain counties), Ohio, and Tennessee. According to insurance agent Kevin Corban, producers who qualify do typically select the HR-ACE For corn and soybeans.

However, the HR-ACE is not currently available for cotton as the development of it originated in areas where cotton is not commonly produced. The expansion of this endorsement to include cotton would be a valuable addition for southern producers farming in high-risk areas. According to the National Agricultural Statistics Service (NASS), the total planted acres of cotton in Mississippi in 2020 was 530,000, down from 1.3 million planted acres just 20 years ago. In a July 6, 2020 Cotton Farming article, Mississippi State University Extension cotton specialist Brian Pieralisi and agricultural economist Will Maples pointed to market issues as the leading reason for growers backing off from planting as much cotton, reiterating that cotton production is expensive, markets are down, and producers have a hard time penciling in profit in many years, especially when prices fall below 60 cents per pound.

Additionally, decisions to plant crops other than cotton, namely soybeans, become easier to make especially if producers are trying to plant cotton outside of its optimum planting window in May. The final planting date for cotton in Adams County, MS is May 25, with the late planting period ending June 9. The height of the river at the Vicksburg gauge directly correlates with the flood conditions of batture land in Warren and Claiborne Counties. There have only been five of the last 10 years (2012, 2014, 2015, 2016, and 2018) that the Vicksburg gauge has been at or below 43 ft during the May and June cotton planting period. The height of the river at the Natchez gauge directly correlates with the flood conditions of batture land in Adams and Jefferson Counties. There have only been four of the last 10 years (2012, 2014, 2015, and 2016) that the Natchez gauge has been at or below 48 ft during May and June.

Loss of Revenue and Increased Premium Costs

In its memo to Congress, the MFBF stressed the significant lost opportunity cost involved with farming batture land during the last 10 to 12 years, stating that many of the farms are unable to plant the crop they intended to plant on February 28 due to the length of time flood waters now stay on the farm. They affirmed that, in essence, this flood scenario now dictates what a producer can plant, rather than the commodity market, which leads to significant lost revenue on an annual basis. Changes announced by RMA in August 2020, after the initial proposal and discussions with producers, have helped address some of these concerns. Producers will now be able to claim prevented planting on the unplanted portion of a field even if part of the field is planted to a different crop. The producer will be required to provide proof of intent to plant the prevented planting acres to the crop claimed (e.g. corn) and not to the crop that was physically planted (e.g. soybeans) on a portion of the acreage. In this scenario, producers may be eligible

for a prevented planting payment on the unplanted acres of corn if they can provide adequate documentation that they had intended to plant the entire acreage in the field to corn (seed receipts, fertilizer inputs, etc.). Additional changes include allowing acreage planted with an uninsured second crop following the failure of a first crop within the same year to be included as prevented planting eligible acreage and extending the use of an intended acreage report for the first two years for a producer growing a crop in a new county (RMA, 2020).

Potential to Lose Enterprise Unit Eligibility in Years of Prevented Planting

Producers of soybeans, corn, and cotton in Mississippi are eligible for enterprise units under plans of insurance typically selected for corn, soybeans, and cotton in this region (e.g., Revenue Protection (RP), Yield Protection (YP)). According to the 2021 Common Crop Insurance Policy Basic Provisions (21-BR), the definition of enterprise unit is “all insurable acreage of the same insured crop or all insurable irrigated or non-irrigated acreage of the same insured crop in the county in which you have a share on the date coverage begins for the crop year, provided the requirements of section 34 are met.” Section 34 (a)(4) provides the provisions for qualifying for an enterprise unit, all of which are based on the planted acres of the insured crop. To qualify for an enterprise unit, the enterprise unit must contain all of the insurable acres of the same insured crop in two or more (1) sections, (2) section equivalents, (3) FSA farm numbers, (4) any combination of these if more than one of these are the basis for optional units where the acreage is located or are applicable to the insured acreage, (5) any combination of these that contains at least 660 planted acres of the insured crop, or (6) two or more units established by written agreement. In addition, to qualify for an enterprise unit, at least two of these must each have planted acreage that constitutes at least the lesser of 20 acres or 20% of the insured crop acreage in the enterprise unit. If there is planted acreage in more than two of these, they can be aggregated to form at least two parcels to meet this requirement.

Producers electing the enterprise unit structure must do so at sales closing based on planting intentions. If, at acreage reporting, they do not have at least two units meeting the 20/20 rule, they no longer qualify for the enterprise unit, and cost savings both from the enterprise unit premium subsidy as well as the enterprise unit premium discount are forfeited. Producers in many instances have opted for enterprise units but given their high concentration of acreage in high-risk areas in multiple instances have not been able to qualify. The primary reason for not qualifying is that, because of flooding, producers have not been able to meet the planted acres requirements. Thus, they have not benefited from premium cost savings provided by enterprise units. This could be an issue in the batture lands if a producer is relying on farmland with a high flooding frequency to qualify for the enterprise unit on other non-high-risk land in the county, since prevented planting acreage would not be considered planted acreage for purposes of meeting the 20/20 rule. Enterprise unit subsidies are 80% at the 50% through 70% coverage levels, resulting in significant producer paid premium savings as compared to basic and optional unit subsidies which range from 59% to 57% for the same coverage levels.

CONCLUSION

As discussed, the combined frequency and severity of flooding in the Mississippi batture land area has resulted in an erosion of crop insurance coverage and an escalation of premium costs to insureds. This has made it difficult to maintain a reasonable level of insurance coverage at an affordable cost to the insured. From an economic perspective, farmers in batture lands are dealing with a host of issues because of frequent flooding, none of which are beneficial. In years when a crop can be made, the batture land is highly fertile and can produce yields comparable or higher than surrounding non high-risk acreage. For this reason, batture land producers are adamant that they prefer to plant and harvest a crop every year and will go to great lengths to ensure that a crop is planted. It has been reiterated by numerous producers that they do not want to consider alternatives that involve not farming the land.

Many producers in the affected areas have contended that sedimentation of the river has exacerbated the flood problem and that the level of channel aggradation in this area is possibly the most severe in the entire MR&T system (MFBB, 2018). This was not an assessment that was substantiated, but it was unquestionably confirmed that precipitation has significantly increased in recent years because of the climatological cycles currently in play. This has led to increased flooding in the higher risk areas as the drainage system has been pushed to and in some instances beyond capacity. Flooding has not only been more frequent but has intensified in severity and duration as well, which hinders the ability of producers to plant crops in a timely manner or after flood waters have receded.

In preparation for the feasibility study authorized by the 2018 Farm Bill, producers in the Mississippi batture land, through the MFBB, offered a series of suggestions and requested a review of premium rates for batture land, stating that there should be permanent relief through premium rate adjustments provided to the farmers in these affected areas. They suggested that comparative premium rates from counties that have a levee system or parishes in Louisiana with a levee could be used for establishing a more palatable premium rate. Producers also requested the higher yields on the Louisiana side of the river for comparable soil types be considered for establishing guarantees on the batture acreage in Mississippi.

AgriLogic agrees that, considering soil quality, much of the batture acreage can produce comparable yields to the protected acreage on the Louisiana side. Considering the impact that flooding has on the yield history, the erosion of the yields of the Mississippi counties is not unreasonable. AgriLogic understands the request has to do with supporting the yield history of the insureds and believes that there are different alternatives for addressing the concerns of producers in an actuarially sound manner.

Given the frequency and duration of the flooding in the batture land area, it is reasonable to conclude that the farmland and crops in these counties are at higher risk and more susceptible to hazardous growing conditions or the prevention of planting all together. Logically, this leads to higher frequencies of insurable losses and thus higher premium rates to help offset those losses. Therefore, based on our review, the significantly higher premium rates for high-risk land

in these Mississippi counties are not unwarranted from an actuarial perspective but could be moderated to a degree and still be actuarially sound.

High-risk maps were also reviewed by AgriLogic and found to be accurate in most areas. This is in line with what was stated by producers and insurance personnel. AgriLogic would recommend that producers, in a few areas identified where refinements may be merited, make the Jackson RO aware of any high risk (AAA) rated land that is significantly less prone to flooding. This should result in a rate review of those areas with the potential to have the Jackson RO high-risk maps revised or have their premium rates altered through the written agreement rate adjustment process.

Regarding written agreements, the Jackson RO does review and potentially approve rate adjustments for high-risk land and offers multi-year written agreements (up to three years) for producers who have qualified for the standard county rate for four previous consecutive years. Written agreement requests are reviewed annually based on current flood conditions and offer appropriate premium rates (additive or even standard rate in some cases).

One of the primary concerns voiced by batture land producers and those representing their interests is the difficulty they have in maintaining their APH when they are prevented from planting the intended crop. Many times, the resulting APH results in lower relative guarantees associated with increased premium rates base on lower yield ratios. According to MFBF, because many of these farms have experienced back-to-back floods in the last 10 to 12 years, their APH is so low that purchasing buy-up coverage is of little value in providing an effective farm safety net. Several of the recommendations provided by AgriLogic in the subsequent section of this report are intended to provide solutions for this issue (e.g., late planted soybean practice, yield exclusion on high-risk land, and High-Risk Coverage Endorsement for Cotton (HR-ACE)). Other recommendations address the complaint that premium costs are unrealistic by providing solutions that result in producers being able to better customize their crop insurance coverage. This is achieved mainly by electing lower coverage levels on high-risk vs. non-high-risk land and obtaining higher subsidies, thereby reducing the overall producer paid premium for high-risk land (e.g., HR-ACE for cotton, the influence enterprise unit discounts, and High-Risk Flood Endorsement).

In conclusion, AgriLogic has performed an independent review of a variety of suggestions and options and has determined their feasibility regarding actuarial soundness, cost effectiveness, and the avoidance of moral hazard. All recommendations for implementation provided herein are intended to ensure that batture land producers are offered meaningful risk management tools within the authority of the Federal Crop Insurance Act while upholding responsibility to taxpayers. Additional solutions are also included for further consideration, some of which may require legislative action.

RECOMMENDATIONS FOR IMPLEMENTATION

Recommendation 1 - Create a separate practice for Late-Planted Soybeans

One mechanism which could be utilized to support the insured's APH for timely planted NFAC soybeans, while appropriately reducing expected yields for late-planted soybeans, is to offer separate planting practices for both timely and late-planted acreage. A final planting date of June 15th for timely planted soybeans would apply to the early season practice, while the planting window for late planted soybeans would fall between June 16th and July 15th with no late planting period for soybeans planted after July 15th. Soybeans planted after July 15th would be uninsurable. Given the high frequency of late planted soybeans in the batture land area, a large portion of the insured's APH is already comprised of late planted soybean yields. Consequently, when the late planting period yield adjustments are applied, the insured's guarantee, which is already comprised of many late planted yields, is essentially being penalized twice. The occurrence of each planting practice appears to be common enough to allow the establishment of separate databases to allow for the calculation of approved yields for each practice in this area.

For example, a Jefferson County producer's current average yield is based on a combined database as depicted in Table 5. The actual yield history for this producer is 40 bushels per acre with an approved yield of 40 bushels after yield adjustments are made substituting 60% of the respective T-yield. Under current procedures, if this producer is forced to delay planting until July 3rd, there would be an 18% reduction in the insurable guarantee, which in effect changes the APH to 33 bushels per acre as depicted in Table 5. The impacts of allowing the separation of the databases into early and late planted practices would isolate the yield history and avoid a second penalty being applied to the insured's yield guarantee. This is again presented in Table 5 in which the APH for soybeans planted on or before June 15th is 40 bushels while the annual yields for those planted after June 15th results in an approved yield of 39 bushels. Example transitional yields for the late planting practice under this scenario were calculated as reducing the current values by one percent for each day after June 15th for the average late planting date shown in Table 4. The average planting date for policies that would fall under the late planting practice is June 28th. As such, a 13% reduction in the current T-yield was used for this estimate. The preferred solution for establishing T-yields would be to base it from the actual yield history observed from the AAA acreage during the late planting period which could be constructed from the insured's yield history.

Table 5. Jefferson County, MS Combined Database – Soybeans (Current Procedure)

Year	NFAC Practice			
	Actual Annual Yield History	T-Yield	60% of T-Yield	Adjusted Yield
2003	37	20	12	37
2005	41	24	14	41
2006	25	24	14	25
2009	36	26	16	36
2010	50	26	16	50
2011	27	26	16	27
2012	60	29	17	60
2013	46	29	17	46
2014	48	29	17	48
2016	27	29	17	27
Rate Yield:	40			
APH Yield:			NFAC:	40
Late Planting Scenario:				
Final Plant Date:			6/15/2017	
Actual Planting Date for 2017 Crop Year:			7/3/2017	
Days after Final Plant Date:			18	
NFAC Current Procedure APH:			33	

Compared to currently published APH procedures used to establish approved yields by practice and type, establishing soybean approved yields on an early/late practice presents no additional potential for increased fraud and abuse. A continuation of the previous example is provided in Table 6. T-yields would be established based on one of the options presented above; producers who do not have four years of actual production history would be subject to the RMA variable T-yield procedure in the calculation of their approved yields for late planted soybeans. Once established, approved yields will be based on the producer's actual production history. Additionally, RMA should establish appropriate premium rates for the late planted practice. If implemented, this recommendation should be piloted in the four Mississippi counties.

Table 6. Jefferson County, MS Separate Database for Late Planting Practice – Soybeans (Alternative Procedure)

Early NFAC Practice				Late NFAC Practice				
Year	Planted by June 15th	Actual Yield	APH Yield	Example Late NFAC T-yield	60% of Late NFAC T-yield	Planted After June 15th	Actual Yield	Adjusted Yield
2003	No			17	10	Yes	37	37
2005	Yes	41	41	21	13	No		
2006	Yes	25	25	21	13	No		
2009	No			23	14	Yes	36	36
2010	No			23	14	Yes	50	50
2011	No			23	14	Yes	27	27
2012	Yes	60	60	25	15	No		
2013	No			25	15	Yes	46	46
2014	Yes	48	48	25	15	No		
2016	Yes	27	27	25	15	No		
Rate Yield:		40		Rate Yield:			39	
APH Yield:		Early NFAC:	40	APH Yield:		Late NFAC:	39	

A minimal increase in overall liability will likely be observed by having separate planting periods even with the potentially higher guarantees established by producers during the early planting window and those that historically outperform the current APH reduction for late planted soybeans. Table 7 exhibits the differences in actual annual average liabilities and paid indemnities for soybean growers from 2011 through 2019 and the estimated values under the option to split a producer's database by planting period. If this recommendation is implemented premium rates for the late planting practice should be established from the significant historical data available in this location. As demonstrated the segregation of into an additional late-planting practice more appropriately aligns the insurance guarantees with insured's true expectations of productivity. The premium rate would obviously increase for this practice relative to the earlier planting practice as demonstrated by the relative change in liability to indemnities in Table 7.

Table 7. Estimated Increase in Annual Liabilities and Indemnities Under Separate Planting Practice

County	Current Average Liability	Planting Practice Liability	Difference	Net Acres Insured	\$/Ac Increased Coverage	% Increase
Adams	\$631,734	\$714,983	\$83,249	5,090	\$16.36	113%
Claiborne	\$39,580	\$44,301	\$4,721	578	\$8.16	112%
Jefferson	\$407,705	\$411,470	\$3,766	3,376	\$1.12	101%
Warren	\$2,005,431	\$2,069,902	\$64,471	8,819	\$7.31	103%
Total	\$3,084,450	\$3,240,656	\$156,207	17,862	\$8.75	105%

County	Current Average Indemnity	Planting Practice Indemnity	Difference	Net Acres Insured	\$/Ac Increased Coverage	% Increase
Adams	\$199,095	\$297,586	\$98,491	5,090	\$19	149%
Claiborne	\$0	\$0	\$0	578	\$0	-
Jefferson	\$36,994	\$38,052	\$1,057	3,376	\$0	103%
Warren	\$324,065	\$339,847	\$15,782	8,819	\$2	105%
Total	\$560,154	\$675,485	\$115,331	17,862	\$6.50	121%

Recommendation 2 - Expand the Availability of High-Risk Alternative Coverage Endorsement (HR-ACE) to Cotton

AgriLogic concluded that producers would appreciate the option to plant cotton in years where flooding is not a concern and market conditions allow. Producers in these high-risk areas should be given the same opportunity to elect the HR-ACE on cotton as is available on their other crops. RMA may also consider offering the endorsement to producers who wish to continue planting cotton in high-risk areas outside the scope of the project. AgriLogic recommends offering this endorsement in all areas where the HR-ACE is already available for other crops, where cotton is also grown.

Recommendation 3 – Allow Multi-Year Written Agreements for Additive Rate Adjustments

AgriLogic would recommend that the Jackson RO consider allowing producers to elect multi-year (up to three years) written agreements for additive rate adjustments if they have been previously approved on the acreage in the prior crop year. Currently, this is only allowed for standard rates. Additionally, high-risk land rates should not be based on conditions for the upcoming crop year. The high-risk rates should reflect the risk of producing the crop on such land over time. Expanding access to written agreements under these conditions will alleviate the administrative burden currently placed on insureds, crop insurance agents, Approved Insurance Providers, and the RMA. If the insureds have a viable case for the approval of a written agreement, providing the flexibility for a multi-year approval that reduces administrative burden and enables insureds to better plan for their operation should be an available option. The capability to better plan often leads to a more stable and profitable farming operation. No major pro forma quantifiable impacts to liability, loss ratio, or subsidy amount are anticipated because of this recommendation.

Recommendation 4 - Create a High-Risk Flood Endorsement (HR-FE)

In addition to the recommendations for improving the crop insurance offering in the subject area within the current bounds of the federal crop insurance program, we were also requested to consider other alternatives beyond the traditional program structure. One alternative offered was the development of a named peril optional High-Risk Flood Endorsement (HR-FE). This could insure specifically against flood as a cause of loss once a given river stage had been triggered on the applicable river gauge (e.g., Natchez or Vicksburg), and the insured loses their crop during a specified coverage period. This endorsement would be made available for additional premium and with buy-up coverage only. The insured would be able to purchase an underlying policy (e.g., 50 or 60% coverage level) and attach an optional endorsement exclusively insuring against flood at a higher coverage level (e.g., 65% to 85%). An area-based subsidy program could be provided for this endorsement (like the Hurricane Insurance Protection Wind – Index Endorsement (HIP-

WI)). This alternative would be more cost effective than purchasing the underlying policy at the higher coverage level (e.g., 65 to 85%) and would allow the producer to benefit from more cost-effective premium rates by excluding all other causes of loss beyond flood for the higher coverage levels.

AgriLogic does not envision that offering such an endorsement would be of any more concern than the underlying program in the same location with the same sales closing date. This endorsement would provide an alternative for reducing some of the premium cost for obtaining coverage in these areas. Given the frequency of flooding in this area, the premium associated with a High-Risk Flood Endorsement is likely to be cost prohibitive without additional premium subsidy from non-crop insurance sources (congressional appropriation of required funding). As demonstrated previously in Figure 12, flood as a cause of loss makes up most indemnities in these counties. This optional endorsement could be offered in the four Mississippi counties for high-risk (AAA) land only as a pilot concept.

Recommendation 5 - Create a High-Risk Land Yield Exclusion Option

The current Yield Exclusion (YE) option is authorized to trigger at the county level, which does not benefit batture land producers. Although not currently within legislative constraints, one option to consider would be to allow an eligible crop year exclusion for ground identified as high risk (AAA). AgriLogic realizes that this would necessitate legislative modifications, but such an allowance could potentially benefit producers of other crops in other high-risk areas of the U.S. and for other various sub-county level losses as well.

For example, a high-risk land exclusion option could be based on the level of the Mississippi River during certain time periods for high-risk ground only. The two northern counties could trigger based on river heights at the Vicksburg gauge and the two southern counties based on river heights at the Natchez gauge.

- Warren County – Vicksburg – 43 ft.
- Claiborne County – Vicksburg – 43 ft.
- Jefferson County – Natchez – 48 ft.
- Adams County – Natchez – 48 ft.

Additionally, the period during which the flooding occurs is a factor in determining whether an event influences the yields produced or the ability to plant altogether. Final planting dates for corn, cotton, and soybeans should also be considered when establishing the months deemed relevant for river height measurements.

- Corn – April through August
- Cotton – May through August
- Soybeans – June through August

If the river height measured at or above flood stage for the respective gauge locations during the specified period, that crop year for the applicable crop would be eligible for exclusion for acreage designated as high risk only. This option would allow batture land producers the opportunity to maintain a meaningful insurance guarantee that more closely aligns with historical yields when a crop is planted. An example of the impact this option would have on a producer's APH can be seen in Table 8 for a corn grower in Jefferson County.

Table 8. Jefferson County, MS High-Risk Yield Exclusion - Corn

Year	Annual Yield	County Exclusion Eligibility	Annual Yield with County Based Eligible Yields Excluded	AAA Exclusion Eligibility	Annual Yield with Flood Trigger Eligible Yields Excluded
1999	122	-	122	-	122
2000	132	-	132	-	132
2001	154	-	154	-	154
2002	119	-	119	Yes	
2004	144	-	144	-	144
2009	0	Yes		Yes	
2012	134	-	134	-	134
2013	0	-	0	Yes	
2015	0	-	0	Yes	
2018	61	-	61	Yes	
Approved Yield	87		96		137

Alternatively, by increasing the river height trigger to 45 feet at the Vicksburg gauge and 50 feet at the Natchez gauge, there is a 9% reduction in the eligible years that qualify in Warren and Claiborne Counties and a 19% reduction in Jefferson and Adams Counties. This option would provide a more conservative approach.

By potentially increasing approved yields, the total liability associated with the high-risk land in these counties will also increase. An example is presented in Table 9 for the four counties of interest. Examining the policy-level data and adjusting historical APHs to account for the excluded yields under the suggested parameters indicate that the increase in average annual liability would be \$22 more per acre, or an increase of 10%, if all producers participated at the same levels of coverage between 2011 and 2019. A similar increase in paid indemnities can be expected given the rise in covered production. The increase in the indemnities is at a more rapid rate than liability as demonstrated in the figure which would lead to higher premium rates being charged for the excluded yields from the Approved Yield determination thereby increasing the effective coverage level in the continuous rating premium rate calculation. With properly position premium rates given the insured's effective coverage level, adequate premium could be collected that would correspond with the more robust coverage offering.

Table 9. Annual Liability and Indemnity Increase^o for High-Risk Yield Exclusion

County	Current Average Liability	AAA YE Liability	Difference	Net Acres Insured	\$/Ac Increased Coverage	% Increase
Adams	\$816,061	\$998,972	\$182,911	6,263	\$29	122%
Claiborne	\$120,471	\$129,871	\$9,400	622	\$15	108%
Jefferson	\$978,716	\$1,114,062	\$135,346	5,684	\$24	114%
Warren	\$4,044,986	\$4,322,414	\$277,428	14,657	\$19	107%
Total	\$5,960,235	\$6,565,319	\$605,085	27,226	\$22	110%

County	Current Average Indemnity	AAA YE Indemnity	Difference	Net Acres Insured	\$/Ac Increased Coverage	% Increase
Adams	\$261,675	\$382,765	\$121,090	6,263	\$19	146%
Claiborne	\$27,565	\$29,508	\$1,944	622	\$3	107%
Jefferson	\$426,662	\$496,573	\$69,911	5,684	\$12	116%
Warren	\$1,135,050	\$1,270,384	\$135,334	14,657	\$9	112%
Total	\$1,850,952	\$2,179,230	\$328,278	27,226	\$12	118%

As previously mentioned for this feature to be added to the federal crop program legislation authorization would likely be required.

ADDITIONAL CONSIDERATIONS

Item 1 - Waive the 60% APH Approved Yield Penalty for Prevented Planting on Corn and Cotton

A 2013 USDA Office of Inspector General (OIG) study suggested that the RMA prevented planting policy for assigning yields has potentially created an incentive for not planting a second crop, even when it is possible to do so. In fact, between 2008 and 2011, producers only planted 0.1% of prevented planting acres to a second crop. During interviews, producers acknowledged the economic disincentive to planting a second crop caused by the resulting assignment of 60% of the approved yield on the first crop. The study summarized that the prevented planting policy, as currently structured, has created a disincentive to planting a second crop and, thus, indirectly penalizes those that do plant, which conflicts with the USDA goal of providing adequate risk management coverage, while at the same time promoting agricultural production (USDA OIG, 2013). As a result of these considerations, one alternative to consider would be the waiver of the prevented planting yield penalty on the first crop when the insured elects to plant a second crop.

While not currently authorized by the Act and having the potential for far-reaching impact on many other commodities and areas of the U.S., waiving the 60% APH approved yield penalty would benefit batture land producers for the crop prevented from being planting. This would eliminate the adverse impact on the insured's approved yield under current prevented planting procedures, as reflected in Table 10, and would, in essence, allow the producer to maintain an approved yield equal to that of leaving the acreage idle. The only penalty would be the reduced prevented planting payment on the first crop.

Table 10. Prevented Planting Comparison with Current and Recommended Procedures

Year	Current Procedure			Proposed Procedure Annual Yield with PP and 2 nd Crop if 60% Penalty is Waived
	Years PP and 2 nd Crop Planted	Annual Yield with 60% Penalty in 2 nd Crop Years	Annual Yield with PP and NO 2 nd Crop (Ground Left Idle)	
1998	-	92	92	92
1999	-	91	91	91
2000	-	120	120	120
2001	-	139	139	139
2002	-	122	122	122
2003	-	126	126	126
2005	-	140	140	140
2013	PP 60%	71	-	-
2017	-	186	186	186
2018	PP 60%	78	-	-
Approved Yield		117	127	127

While this would be a suitable modification to the prevented planting situations outlined in this document, we recognized that the elimination of this restriction would have broad and far-reaching impacts on the overall federal crop insurance program. The prevented planting portion of the federal crop insurance program is an area in which numerous complexities have developed over the years to keep the program's function aligned with the overall program risk mitigation objectives. As a result, the existing 60% yield penalty feature has been incorporated into the program to ensure that repeated use of prevented planting will have a corresponding impact on the insured's future coverage for the applicable crop. This is an appropriate response by the program in our assessment; consequently, we do not recommend modifications to this procedure at this time but first incorporate our other recommendations into the program.

Item 2 - Allow Enterprise Unit Subsidy to be Maintained in Years of Prevented Planting

Recognizing that such a solution would require changes in legislation, we believe that it would be beneficial to allow producers to maintain enterprise units in years of prevented planting. This would only be the case if they had previously qualified for enterprise units on the crop in the county in three of the last five years and the applicable acreage for the year in question would have been on an enterprise unit basis if it could have been planted. This suggestion cannot be adopted with current statute as the unit structure requirement is on a planted-acre and not an insured-acre basis for Enterprise Units. However, if this were modified in future legislation, it would be well received by insureds when they experience extreme prevented planting conditions that significantly impact their financial condition for the year. It is a significant matter to insureds to incur a secondary negative consequence resulting from an involuntary change in insured unit election which significantly increases the producer-paid premium for the given coverage level selected than budgeted for at sale closing date. The change in the insured unit ultimately attaching to the crop for a specific insurance period can be beyond the insured's control in extreme prevented planting circumstances.

This modification would impact the federal crop insurance program for multiple crops and locations in years of excessive prevented planting conditions. The primary difference entails producers maintaining the premium subsidy schedule they expected at sales closing date. The secondary modification includes the retention of the enterprise unit election in years of extreme prevented planting for the insured. This would lead to lower total premium amounts than the current optional unit specification. From the perspective of the insurer, there are two considerations. First it would be preferable to obtain more premium to offset prevented planting losses which can be significant portions of total indemnity, such as in 2019. The second consideration would entail processing system changes to accommodate the validation check that the insured had qualified for enterprise units in three of the last five years to maintain the enterprise unit election.

In summary, the deviation in producer-paid premium related to extreme prevented planting conditions, as observed in 2019, is a consideration for policy makers in the future with respect to



the impact on insureds. A potential compromise could be allowing insureds to make one coverage level election if they were able to maintain their original enterprise unit elections and a lower coverage level election if they were diverted to optional unit coverage due to broad instances of prevented planting. This could allow insureds to better plan for and accommodate shocks to their operations in years of extreme prevented planting circumstances.

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