Use of Prediction Tables for Soybean Growth and Maturity in the Mississippi Delta

Lingxiao Zhang, Steve Kyei-Boahen, Jiuquang Zhang, Clarence E. Watson, Daniel Poston, Alan Blaine, and Bernie White

INTRODUCTION

Predicting soybean growth and development stages are important for soybean farmers and researchers to effectively plan and schedule production practices. Based on a 5-year (1998–2002) study at Stoneville, Mississippi (33.4° N, 90.9° W), empirical models were deducted from the data using three methods: neural network analysis, regression analysis, and iterative approximation. The detailed methods will be discussed in a separate paper. Prediction results from these models were developed into a series of timetables for local farmers and Extension agents to predict the growth and development stages of their soybeans under field conditions. The period of prediction covers the entire growing season from early March to late October, and the maturity groups (MG) range from early MG III to late MG VI. Studies were conducted under irrigated conditions, and weeds and diseases were controlled. The timetables were cross-validated, and the accuracies of the predictions were acceptable. Detailed information has been published in an online journal (Zhang et al. 2004). However, we believe that further discussion of the practical applications and the paper version of these prediction tables should be helpful to many Mississippi soybean farmers.

APPLICATION AND LIMITATIONS OF TABLES

Planting date and MG value are the only two input parameters needed to use these tables. A description of how to define soybean growth stages by Fehr and Caviness (1977) has been provided as reference for soybean farmers (Table 1). Prediction processes were divided into two periods: vegetative (Table 2) and reproductive (Table 3). In Table 2, MG value is the only input variable needed, which indicates that all MGs react during the vegetative growth period (up to V8 stage) similarly.

There are four limitations and restrictions that may apply to these tables:

(1) Growth stages: The definitions of the growth stage have been provided in Table 1. Some of the stages are difficult to define on a single-day basis. The dates indicated are estimates.

(2) Irrigation: The construction of these tables is based on irrigated conditions. Soil type did not influence soybean growth stage development on irrigated fields. For nonirrigated soybeans, the predicted stages will vary depending on weather conditions and moisture availability for that particular year. However, under normal situations, the maturity date for dryland MG IV soybeans is usually one to two weeks earlier if planted within the normal recommended optimum planting window (April 15 to May 15).

Lingxiao Zhang is an associate research professor, Kyei-Boahen is a postdoctoral associate, and Poston is an associate extension/research professor at the Delta Research and Extension Center, Mississippi State University; Jiuquang Zhang is a former graduate student in the MSU Department of Computer Science; Watson is an associate director of the Mississippi Agricultural and Forestry Experiment Station; Blaine is an extension professor with the MSU Department of Plant and Soil Sciences; and White is the MAFES variety trial manager.

(3) Temperature effect: Though temperature was not an input for the tables, it may be a factor when extreme temperature variations occur in a particular year; therefore, this factor should be taken into account when using these tables. Also, greater variations in the prediction are likely with extremely early plantings (before March 25) due to the variable temperature effects in early spring, which may greatly affect the initial growth rate of the plant. Variations may also be greater with later maturity cultivars (MG VI or later) since cool temperature and excessive rain may delay the maturity process.

(4) Regions suitable to use the tables: The tables are based on data from Stoneville, Mississippi. Predictions may be a little "off" for locations further north or south. The principle of the prediction is that if you are further north, you need to add one to three more days for maturity (R8) and vice versa if you are further south. However, the prediction should be close if the latitude is within 0.5 degrees from Stoneville, approximately between 33° and 34° N Latitude, or from an area between Rosedale and Glen Alen. These tables are also valid for other areas located within this latitude range, such as Starkville, Mississippi.

Table 1. Summary description of soybean vegetative and reproductive stages.

Stage	Notation	Definition
Vegetative stage		
Emergence	VE	Cotyledons above the soil surface
Cotyledon	VC	Unifoliate leaves unrolled sufficiently so that the leaf edges are not touching
First node	V1	Fully developed leaves at unifoliate nodes
Second node	V2	Fully developed trifoliate leaf at node above the unifoliate nodes
.	.	
.	.	
nth node	V(n)	nth number of nodes on the main stem with fully developed leaves beginning with the unifoliate nodes.
Reproductive stage		
Beginning bloom	R1	One open flower at any node on the main stem
Full bloom	R2	Open flower at one of the two uppermost nodes on the main stem with a fully developed leaf
Beginning pod	R3	Pod 5 mm (3/16 inch) long at one of the four uppermost nodes on the main stem with a fully developed leaf
Full pod	R4	Pod 2 cm (3/4 inch) long at one of the four uppermost nodes on the main stem with a fully developed leaf
Beginning seed	R5	Seed 3 mm (1/8 inch) long in a pod at one of the four uppermost nodes on the main stem with a fully developed leaf
Full seed	R6	Pod contains a green seed that fills the pod cavity at one of the four uppermost nodes on the main stem with a fully developed leaf
Beginning maturity	R7	One normal pod on the main stem that has reached its mature pod color
Full maturity	R8	Ninety-five percent of the pods have reached mature color

(Adapted from Fehr and Caviness, 1977)

Table 2. Date of attainment of vegetative growth stages (VE to V8), by planting date (PD), for soybeans under field conditions at Stoneville, Mississippi.

PD	Vegetative growth stage (month/day)									
	VE	**VC**	**V1**	**V2**	**V3**	**V4**	**V5**	**V6**	**V7**	**V8**
3/10	3/24	4/09	4/15	4/21	4/26	5/01	5/06	5/10	5/14	5/17
3/15	3/29	4/11	4/17	4/23	4/28	5/03	5/08	5/12	5/16	5/19
3/20	4/02	4/13	4/19	4/25	4/30	5/05	5/10	5/14	5/18	5/21
3/25	4/07	4/16	4/22	4/27	5/02	5/07	5/12	5/16	5/20	5/23
3/30	4/11	4/19	4/25	4/30	5/05	5/10	5/15	5/19	5/23	5/26
4/05	4/16	4/23	4/29	5/04	5/09	5/14	5/18	5/22	5/26	5/29
4/10	4/19	4/26	5/02	5/07	5/12	5/17	5/21	5/25	5/29	6/01
4/15	4/22	4/29	5/05	5/10	5/15	5/20	5/24	5/28	6/01	6/04
4/20	4/27	5/03	5/09	5/14	5/19	5/23	5/27	5/31	6/04	6/07
4/25	5/01	5/07	5/13	5/18	5/23	5/27	5/31	6/04	6/07	6/10
4/30	5/06	5/12	5/17	5/22	5/27	5/31	6/04	6/08	6/11	6/14
5/05	5/11	5/17	5/22	5/27	6/01	6/05	6/09	6/12	6/15	6/18
5/10	5/15	5/21	5/26	5/31	6/04	6/08	6/12	6/15	6/18	6/21
5/15	5/20	5/26	5/31	6/05	6/09	6/13	6/17	6/20	6/23	6/26
5/20	5/25	5/30	6/04	6/09	6/13	6/17	6/21	6/24	6/27	6/30
5/25	5/30	6/04	6/09	6/14	6/18	6/22	6/25	6/28	7/01	7/04
5/30	6/04	6/09	6/14	6/19	6/23	6/27	6/30	7/03	7/06	7/09
6/04	6/09	6/14	6/19	6/23	6/27	7/01	7/04	7/07	7/10	7/13
6/09	6/14	6/19	6/24	6/28	7/02	7/06	7/09	7/12	7/15	7/18
6/14	6/19	6/24	6/29	7/03	7/07	7/11	7/14	7/17	7/20	7/23
6/19	6/24	6/29	7/04	7/08	7/12	7/16	7/19	7/22	7/25	7/28
6/24	6/29	7/04	7/09	7/13	7/17	7/20	7/23	7/26	7/29	8/01
6/29	7/04	7/09	7/14	7/18	7/22	7/25	7/28	7/31	8/03	8/06

MG				Reproductive growth stage (month/day)					
	PD	R1	R2	R3	R4	R5	R6	R7	R8
3.4	3/25	5/03	5/06	5/18	5/25	5/31	6/22	7/10	7/22
3.4	3/30	5/07	5/10	5/21	5/29	6/04	6/26	7/14	7/27
3.4	4/05	5/11	5/14	5/26	6/03	6/09	7/02	7/19	8/01
3.4	4/10	5/14	5/18	5/30	6/07	6/14	7/06	7/24	8/05
3.4	4/15	5/18	5/22	6/04	6/11	6/18	7/11	7/28	8/10
3.4	4/20	5/22	5/26	6/08	6/16	6/23	7/15	8/02	8/14
3.4	4/25	5/27	5/30	6/13	6/21	6/28	7/20	8/06	8/18
3.4	4/30	5/31	6/04	6/17	6/25	7/03	7/25	8/11	8/22
3.4	5/05	6/04	6/08	6/22	6/30	7/08	7/30	8/15	8/26
3.4	5/10	6/09	6/13	6/27	7/05	7/12	8/03	8/19	8/31
3.4	5/15	6/14	6/18	7/02	7/10	7/17	8/08	8/24	9/04
3.4	5/20	6/19	6/23	7/07	7/15	7/22	8/13	8/28	9/07
3.4	5/25	6/24	6/28	7/12	7/20	7/27	8/17	9/01	9/11
3.4	5/30	6/29	7/03	7/17	7/25	8/01	8/22	9/05	9/15
3.4	6/04	7/04	7/08	7/23	7/30	8/06	8/26	9/09	9/19
3.4	6/09	7/09	7/14	7/28	8/04	8/11	8/30	9/13	9/22
3.4	6/14	7/15	7/19	8/02	8/09	8/16	9/04	9/17	9/26
3.4	6/19	7/20	7/24	8/07	8/14	8/21	9/08	9/21	9/29
3.4	6/24	7/25	7/29	8/12	8/18	8/25	9/12	9/24	10/02
3.4	6/29	7/31	8/04	8/17	8/23	8/30	9/16	9/28	10/05
3.9	3/10	4/29	5/02	5/13	5/20	5/27	6/18	7/06	7/19
3.9	3/15	5/02	5/05	5/16	5/23	5/30	6/22	7/11	7/24
3.9	3/20	5/05	5/08	5/20	5/27	6/03	6/26	7/15	7/28
3.9	3/25	5/08	5/11	5/23	5/31	6/07	6/30	7/19	8/01
3.9	3/30	5/11	5/14	5/27	6/04	6/11	7/04	7/23	8/05
3.9	4/05	5/15	5/19	6/01	6/09	6/16	7/09	7/28	8/10
3.9	4/10	5/19	5/22	6/05	6/13	6/20	7/14	8/01	8/14
3.9	4/15	5/23	5/26	6/09	6/17	6/24	7/18	8/05	8/18
3.9	4/20	5/27	5/30	6/13	6/21	6/29	7/22	8/09	8/22
3.9	4/25	5/31	6/04	6/18	6/26	7/03	7/27	8/13	8/25
3.9	4/30	6/04	6/08	6/22	7/01	7/08	7/31	8/17	8/29
3.9	5/05	6/08	6/12	6/27	7/05	7/13	8/04	8/22	9/02
3.9	5/10	6/13	6/17	7/02	7/10	7/17	8/09	8/26	9/06
3.9	5/15	6/18	6/22	7/06	7/15	7/22	8/13	8/29	9/10
3.9	5/20	6/22	6/27	7/11	7/19	7/27	8/17	9/02	9/13
3.9	5/25	6/27	7/01	7/16	7/24	7/31	8/22	9/06	9/16
3.9	5/30	7/02	7/06	7/21	7/29	8/05	8/26	9/10	9/20
3.9	6/04	7/07	7/11	7/26	8/03	8/10	8/30	9/14	9/23
3.9	6/09	7/12	7/16	7/31	8/08	8/14	9/03	9/17	9/26
3.9	6/14	7/17	7/21	8/04	8/12	8/19	9/07	9/21	9/30
3.9	6/19	7/22	7/27	8/09	8/17	8/23	9/11	9/24	10/03
3.9	6/24	7/27	8/01	8/14	8/21	8/28	9/15	9/27	10/05
3.9	6/29	8/01	8/06	8/19	8/26	9/01	9/18	10/01	10/08
4.4	3/10	5/04	5/07	5/19	5/27	6/03	6/27	7/17	7/28
4.4	3/15	5/07	5/10	5/22	5/30	6/07	7/01	7/21	8/02
4.4	3/20	5/09	5/13	5/26	6/03	6/10	7/05	7/25	8/06
4.4	3/25	5/13	5/16	5/29	6/06	6/14	7/09	7/28	8/11
4.4	3/30	5/16	5/20	6/02	6/10	6/18	7/13	8/01	8/15
4.4	4/05	5/20	5/24	6/07	6/15	6/23	7/17	8/06	8/19
4.4	4/10	5/24	5/27	6/10	6/19	6/27	7/22	8/10	8/23
4.4	4/15	5/27	5/31	6/15	6/23	7/01	7/26	8/13	8/26
4.4	4/20	5/31	6/04	6/19	6/27	7/05	7/29	8/17	8/30
4.4	4/25	6/04	6/08	6/23	7/02	7/09	8/03	8/21	9/02
4.4	4/30	6/08	6/12	6/27	7/06	7/14	8/07	8/25	9/06
4.4	5/05	6/13	6/17	7/02	7/10	7/18	8/11	8/28	9/09
4.4	5/10	6/17	6/21	7/06	7/15	7/23	8/15	9/01	9/12
4.4	5/15	6/21	6/26	7/11	7/19	7/27	8/19	9/05	9/16
4.4	5/20	6/26	6/30	7/15	7/24	7/31	8/23	9/08	9/19
4.4	5/25	7/01	7/05	7/20	7/28	8/05	8/27	9/12	9/22
4.4	5/30	7/05	7/10	7/24	8/02	8/09	8/31	9/15	9/25
4.4	6/04	7/10	7/14	7/29	8/06	8/14	9/03	9/18	9/28
4.4	6/09	7/15	7/19	8/03	8/11	8/18	9/07	9/22	10/01
4.4	6/14	7/20	7/24	8/07	8/15	8/22	9/11	9/25	10/04
4.4	6/19	7/25	7/29	8/12	8/20	8/26	9/14	9/28	10/07
4.4	6/24	7/29	8/03	8/16	8/23	8/30	9/18	10/01	10/09
4.4	6/29	8/03	8/07	8/21	8/28	9/03	9/21	10/04	10/12

Table 3. Date of attainment of reproductive growth stages (R1 to R8), by maturity group (MG) and planting date (PD), for soybeans under properly irrigated field conditions at Stoneville, Mississippi.

(Continued)

Table 3 (continued). Date of attainment of reproductive growth stages (R1 to R8), by maturity group (MG) and planting date (PD), for soybeans under properly irrigated field conditions at Stoneville, Mississippi.									
MG	**Reproductive growth stage (month/day)**								
	PD	**R1**	**R2**	**R3**	**R4**	**R5**	**R6**	**R7**	**R8**
4.9	3/10	5/09	5/13	5/26	6/04	6/11	7/07	7/28	8/12
4.9	3/15	5/12	5/16	5/29	6/07	6/15	7/11	8/01	8/15
4.9	3/20	5/15	5/19	6/02	6/10	6/18	7/15	8/04	8/18
4.9	3/25	5/18	5/22	6/05	6/14	6/22	7/18	8/07	8/21
4.9	3/30	5/21	5/25	6/09	6/17	6/26	7/22	8/11	8/25
4.9	4/05	5/25	5/29	6/13	6/22	6/30	7/26	8/15	8/29
4.9	4/10	5/29	6/02	6/17	6/26	7/04	7/30	8/19	9/01
4.9	4/15	6/01	6/05	6/21	6/30	7/08	8/03	8/22	9/04
4.9	4/20	6/05	6/09	6/25	7/04	7/12	8/06	8/25	9/07
4.9	4/25	6/09	6/13	6/29	7/08	7/16	8/10	8/29	9/10
4.9	4/30	6/13	6/17	7/03	7/12	7/20	8/14	9/01	9/13
4.9	5/05	6/17	6/21	7/07	7/16	7/24	8/18	9/04	9/16
4.9	5/10	6/21	6/26	7/11	7/20	7/28	8/21	9/08	9/19
4.9	5/15	6/25	6/30	7/15	7/24	8/01	8/25	9/11	9/22
4.9	5/20	6/30	7/04	7/20	7/29	8/05	8/29	9/14	9/25
4.9	5/25	7/04	7/09	7/24	8/02	8/09	9/01	9/17	9/28
4.9	5/30	7/09	7/13	7/28	8/06	8/14	9/05	9/20	10/01
4.9	6/04	7/13	7/18	8/02	8/10	8/18	9/08	9/23	10/03
4.9	6/09	7/18	7/22	8/06	8/14	8/22	9/12	9/26	10/06
4.9	6/14	7/22	7/27	8/10	8/19	8/26	9/15	9/29	10/08
4.9	6/19	7/27	7/31	8/15	8/23	8/30	9/18	10/02	10/11
4.9	6/24	8/01	8/04	8/19	8/26	9/02	9/22	10/05	10/13
4.9	6/29	8/05	8/09	8/23	8/30	9/06	9/25	10/08	10/16
5.4	3/10	5/15	5/19	6/03	6/12	6/22	7/18	8/09	8/23
5.4	3/15	5/18	5/22	6/06	6/15	6/25	7/21	8/12	8/26
5.4	3/20	5/21	5/25	6/09	6/19	6/28	7/25	8/15	8/29
5.4	3/25	5/24	5/28	6/12	6/22	7/01	7/28	8/18	9/01
5.4	3/30	5/27	5/31	6/16	6/25	7/04	7/31	8/21	9/04
5.4	4/05	5/31	6/04	6/20	6/30	7/08	8/04	8/25	9/07
5.4	4/10	6/03	6/08	6/24	7/03	7/12	8/08	8/28	9/10
5.4	4/15	6/07	6/11	6/27	7/07	7/16	8/11	8/31	9/13
5.4	4/20	6/10	6/15	7/01	7/11	7/19	8/15	9/03	9/16
5.4	4/25	6/14	6/18	7/05	7/14	7/22	8/18	9/06	9/19
5.4	4/30	6/18	6/22	7/09	7/18	7/26	8/21	9/09	9/22
5.4	5/05	6/22	6/26	7/13	7/22	7/30	8/25	9/12	9/25
5.4	5/10	6/26	6/30	7/16	7/26	8/03	8/28	9/15	9/28
5.4	5/15	6/30	7/04	7/20	7/30	8/07	8/31	9/18	10/01
5.4	5/20	7/04	7/08	7/24	8/03	8/11	9/04	9/21	10/03
5.4	5/25	7/08	7/13	7/29	8/07	8/15	9/07	9/23	10/05
5.4	5/30	7/12	7/17	8/02	8/11	8/18	9/10	9/26	10/07
5.4	6/04	7/16	7/21	8/06	8/14	8/22	9/13	9/29	10/09
5.4	6/09	7/21	7/25	8/10	8/18	8/26	9/17	10/02	10/11
5.4	6/14	7/25	7/30	8/14	8/22	8/30	9/20	10/04	10/13
5.4	6/19	7/30	8/03	8/18	8/26	9/02	9/23	10/07	10/16
5.4	6/24	8/03	8/07	8/22	8/30	9/06	9/26	10/09	10/18
5.4	6/29	8/07	8/12	8/26	9/03	9/09	9/29	10/12	10/20
5.9	4/10	6/09	6/14	7/01	7/11	7/20	8/17	9/06	9/19
5.9	4/15	6/12	6/17	7/04	7/15	7/24	8/20	9/09	9/22
5.9	4/20	6/16	6/21	7/08	7/18	7/27	8/23	9/12	9/24
5.9	4/25	6/19	6/24	7/11	7/22	7/31	8/26	9/14	9/27
5.9	4/30	6/23	6/28	7/15	7/25	8/03	8/29	9/17	9/29
5.9	5/05	6/27	7/02	7/19	7/29	8/06	9/01	9/20	10/01
5.9	5/10	6/30	7/05	7/22	8/01	8/10	9/04	9/22	10/04
5.9	5/15	7/04	7/09	7/26	8/05	8/13	9/07	9/25	10/06
5.9	5/20	7/08	7/13	7/30	8/08	8/17	9/10	9/27	10/08
5.9	5/25	7/12	7/17	8/03	8/12	8/20	9/13	9/30	10/10
5.9	5/30	7/16	7/21	8/06	8/16	8/24	9/16	10/02	10/13
5.9	6/04	7/20	7/25	8/10	8/19	8/27	9/19	10/05	10/15
5.9	6/09	7/24	7/29	8/14	8/23	8/31	9/22	10/07	10/17
5.9	6/14	7/28	8/02	8/18	8/26	9/03	9/25	10/09	10/19
5.9	6/19	8/01	8/06	8/21	8/30	9/06	9/28	10/12	10/21
5.9	6/24	8/06	8/10	8/25	9/03	9/10	9/30	10/14	10/23
5.9	6/29	8/10	8/14	8/29	9/06	9/13	10/3	10/16	10/24
(Continued)									

MG		Reproductive growth stage (month/day)							
	PD	R1	R2	R3	R4	R5	R6	R7	R8
6.4	4/10	6/16	6/21	7/09	7/20	7/30	8/27	9/15	9/28
6.4	4/15	6/19	6/24	7/12	7/23	8/02	8/30	9/18	9/30
6.4	4/20	6/22	6/27	7/16	7/26	8/05	9/01	9/20	10/02
6.4	4/25	6/25	7/01	7/19	7/29	8/08	9/04	9/23	10/04
6.4	4/30	6/29	7/04	7/22	8/02	8/11	9/07	9/25	10/07
6.4	5/05	7/02	7/07	7/25	8/05	8/14	9/09	9/27	10/09
6.4	5/10	7/06	7/11	7/29	8/08	8/17	9/12	9/30	10/11
6.4	5/15	7/09	7/15	8/02	8/11	8/20	9/15	10/02	10/13
6.4	5/20	7/13	7/18	8/05	8/15	8/23	9/17	10/04	10/15
6.4	5/25	7/17	7/22	8/08	8/18	8/27	9/20	10/06	10/17
6.4	5/30	7/20	7/25	8/12	8/21	8/30	9/23	10/09	10/19
6.4	6/04	7/24	7/29	8/15	8/25	9/02	9/25	10/11	10/20
6.4	6/09	7/28	8/02	8/19	8/28	9/05	9/28	10/13	10/22
6.4	6/14	8/01	8/06	8/22	8/31	9/08	9/30	10/15	10/24
6.4	6/19	8/05	8/10	8/26	9/04	9/11	10/03	10/17	10/26
6.4	6/24	8/09	8/13	8/29	9/07	9/14	10/05	10/19	10/27
6.4	6/29	8/12	8/17	9/02	9/10	9/17	10/08	10/21	10/29
6.8	4/10	6/22	6/27	7/16	7/27	8/06	9/03	9/23	10/04
6.8	4/15	6/25	6/30	7/19	7/30	8/09	9/06	9/25	10/06
6.8	4/20	6/28	7/03	7/22	8/02	8/12	9/08	9/27	10/09
6.8	4/25	7/01	7/06	7/25	8/05	8/15	9/11	9/29	10/10
6.8	4/30	7/04	7/09	7/28	8/08	8/17	9/13	10/01	10/12
6.8	5/05	7/07	7/13	7/31	8/11	8/20	9/16	10/04	10/14
6.8	5/10	7/11	7/16	8/03	8/14	8/23	9/18	10/06	10/16
6.8	5/15	7/14	7/19	8/07	8/17	8/26	9/21	10/08	10/18
6.8	5/20	7/17	7/23	8/10	8/20	8/29	9/23	10/10	10/20
6.8	5/25	7/21	7/26	8/13	8/23	9/01	9/26	10/12	10/22
6.8	5/30	7/24	7/30	8/16	8/26	9/04	9/28	10/14	10/23
6.8	6/04	7/28	8/02	8/20	8/29	9/07	9/30	10/16	10/25
6.8	6/09	7/31	8/06	8/23	9/01	9/10	10/03	10/18	10/28
6.8	6/14	8/04	8/09	8/26	9/05	9/13	10/05	10/19	10/31
6.8	6/19	8/08	8/13	8/29	9/08	9/15	10/07	10/21	11/4
6.8	6/24	8/11	8/16	9/02	9/11	9/18	10/09	10/23	11/7
6.8	6/29	8/15	8/20	9/05	9/14	9/21	10/12	10/25	11/10

Table 3 (continued). Date of attainment of reproductive growth stages (R1 to R8), by maturity group (MG) and planting date (PD), for soybeans under properly irrigated field conditions at Stoneville, Mississippi.

EXAMPLE OF USING THE TABLES

Assumption: A soybean farmer, "Mr. Johnson" of Greenville, Mississippi, intends to plant two soybean varieties on April 20, 2005. One variety is AG4702, which is to be planted on a nonirrigated field, and the other is DP5915, which is to be planted on an irrigated field. He would like to know when his soybeans would reach V4 and R8 to make arrangements for labor and machinery for herbicide application and harvest scheduling.

Solution steps:

(1) *Determine the MG value for the variety*: Usually, the first two numbers after alphabetic letters of the variety are the indication of MG value. However, there are many exceptions. If you are not certain or not familiar with the variety, ask the seed provider, county agent, seed dealer, or university Extension specialist, etc. In this case, the maturity groups of these two varieties are 4.7 and 5.9, respectively.

(2) *Go to the Table 2*: From Table 2, locate the predictions for V stages. Since there is not much difference among different maturity groups at vegetative growth stages, both varieties are expected to reach the V4 stage at a similar time, and can be found at the same place in the table. On the top of the *Stage* row in Table 2, locate *V4* stage. Then locate the planting date (*4/20*) on the *Date* column at the left. At the intersection point, the predicted date, *5/23*, indicates that both varieties should reach the fourth leaf stage (the third trifoliate leaf opening) on this date. It is assumed that irrigated and nonirrigated fields are not much different at the early stage of their growth. With the same principle, migrate to Table 3 and locate the maturity dates (for harvest) for AG 4702 and DP5915, which are on 9/07 and on 9/23, respectively.

(3) *Adjustment*: Since the AG4702 is on a nonirrigated field, it is expected to reach maturity earlier. However, that will be largely dependent on the weather conditions and precipitation. Typically, it is reasonable to expect nonirrigated soybeans to mature a week to 10 days ahead of properly irrigated soybeans. Therefore, the predicted maturity date may be around 8/28-9/01 for the MG 4.9 soybean if planted on April 20 on a non-irrigated field. If a planting date or MG value falls between two listed dates, the two nearest numbers (such as 4/20 and 4/25 for a planting date of 4/22, or MG 4.4 and MG 4.9 for MG 4.7) can be used as the references. Likewise, the average of the two predicted dates can be taken. If the planting date is before April, the difference between irrigation and nonirrigation predictions usually is greater; therefore, the prediction of maturity for nonirrigated soybeans may be over two weeks — again depending on the weather conditions — on extremely early-planted soybeans.

An interactive, Web-based program is also available to allow for the prediction of soybean growth stages via the Internet. The address is msucares.com/deltasoy/-gsModelFrame.htm. We hope that these tables will be useful to soybean growers, county agents, consultants, and producers, as well as soybean researchers in Mississippi. These tables are also valid for predicting soybean growth stages in nearby states within the latitude range of 33–34° N.

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