

2018 Evaluation of Pecan Pollinators in Northern California

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Study Sponsored by the California Pecan Growers Association

Introduction

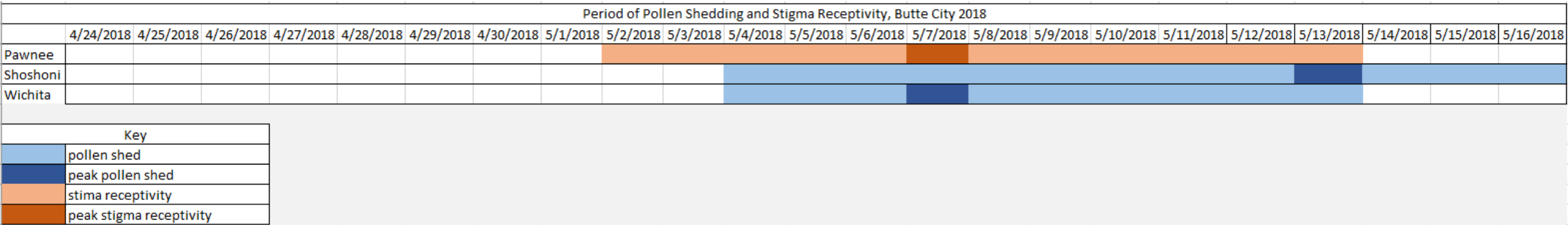
In the Northern Sacramento Valley pecan growing areas, the Pawnee variety is considered one of the preferred varieties for commercial production due to its relatively early harvest date and acceptance as a premium nut in the consumer market.

Evaluation of suitable varieties that cross pollinate Pawnee is ongoing. Year to year variability between varieties with respect to the timing of pollen shed and pistillate flower receptivity has challenged efforts to choose varieties that reliably shed pollen during Pawnee receptivity.

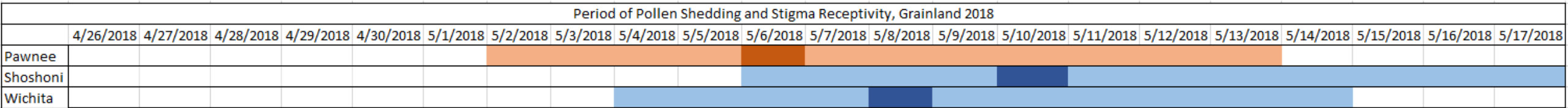
This study was conducted to observe, document, and understand the physiological development during bloom of varieties within several orchards to determine which varieties compliment each other in their ability to successfully cross pollinate.





A similar study was conducted by Bill Olson, Farm Advisor, Butte County, Ret. in 2005 and 2006. Bill was consulted prior to our study, and he was most helpful by sharing his field techniques, observations, and comments with us.

Varieties that Cross-Pollinated Pawnee, Butte City

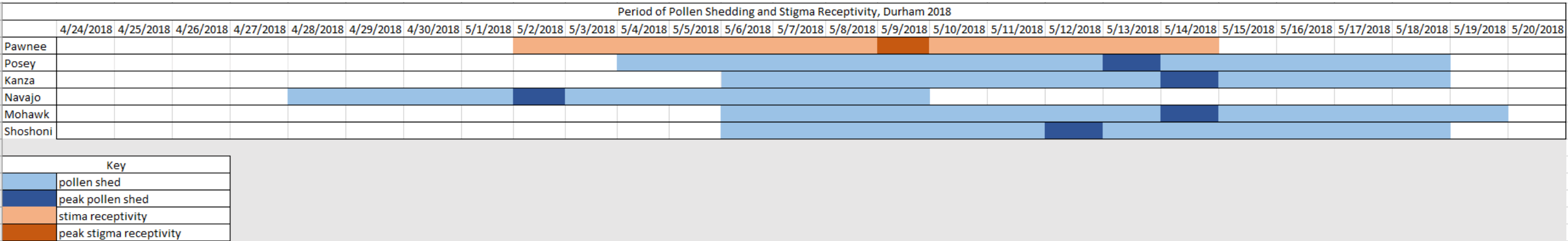


Varieties that Cross-Pollinated Pawnee, Grainland

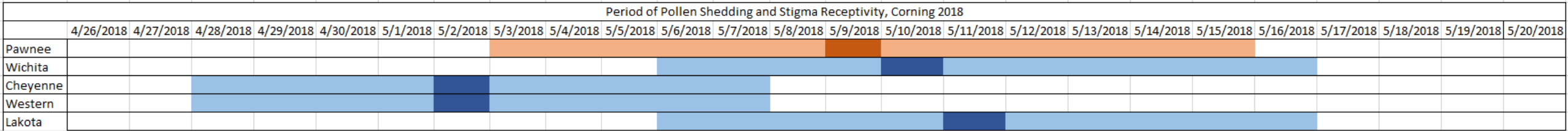


Key	
	pollen shed
	peak pollen shed
	stigma receptivity
	peak stigma receptivity

Varieties that Cross-Pollinated Pawnee, Durham

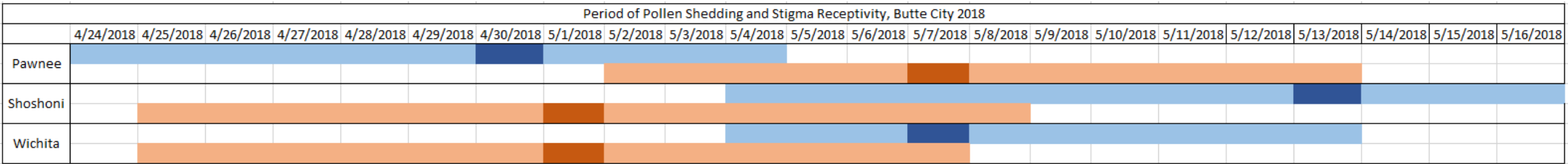






Varieties that Cross-Pollinated Pawnee, Corning



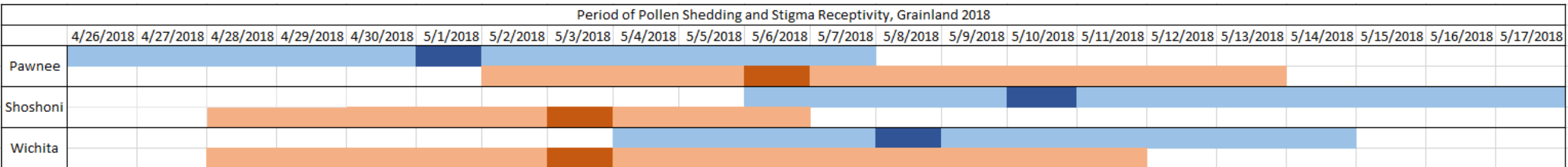
Key	
	pollen shed
	peak pollen shed
	stigma receptivity
	peak stigma receptivity

Period of Pollen Shedding and Stigma Receptivity, Butte City



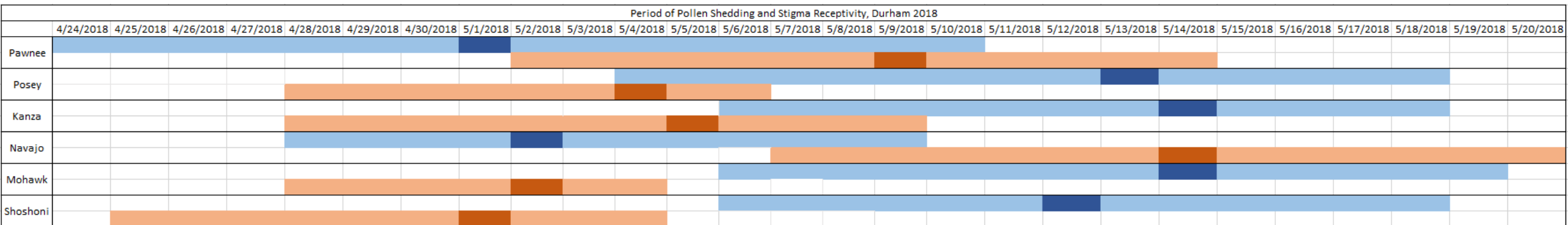
Key	
	pollen shed
	peak pollen shed
	stigma receptivity
	peak stigma receptivity

Period of Pollen Shedding and Stigma Receptivity, Grainland



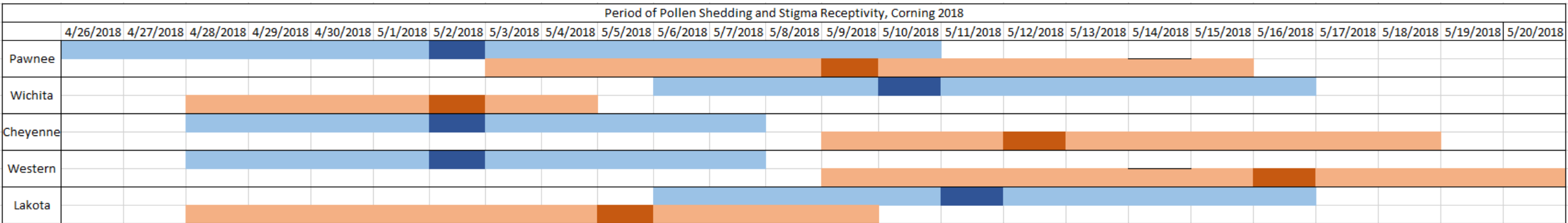
Key	
	pollen shed
	peak pollen shed
	stigma receptivity
	peak stigma receptivity

Period of Pollen Shedding and Stigma Receptivity, Durham



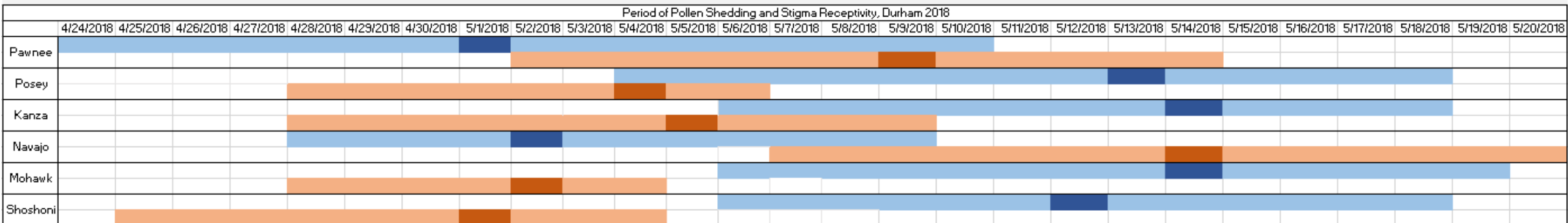
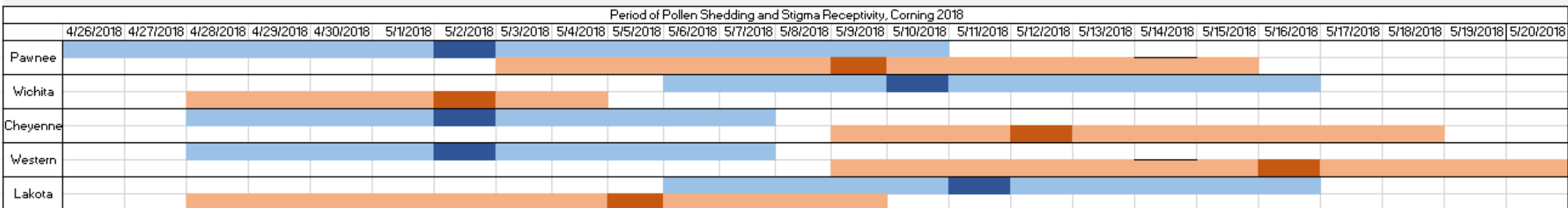
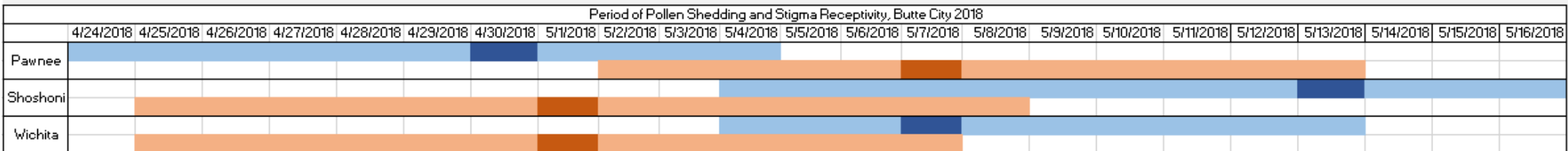
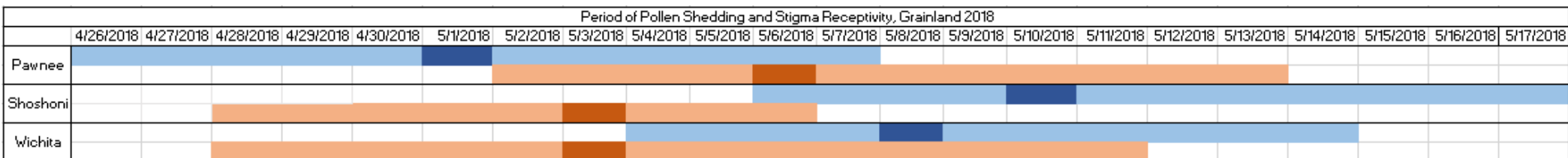
Key	
■	pollen shed
■	peak pollen shed
■	stigma receptivity
■	peak stigma receptivity





Period of Pollen Shedding and Stigma Receptivity, Corning



Key	
■	pollen shed
■	peak pollen shed
■	stigma receptivity
■	peak stigma receptivity

Period of Pollen Shedding and Stigma Receptivity, All Locations



Key	
	pollen shed
	peak pollen shed
	stigma receptivity
	peak stigma receptivity

2018 Pecan Pollination Data (Butte City, Corning, Durham, Grainland Rd.)

Cultivar/Location*	Date	Date	Date	Date of Pollen Shed			Stigma	Date Female			Type	Catkin
	3/8" Bud	1/2" Bud	Leaf				Color	Receptive				Abund
	Break	Break	Burst	First	Peak	End	G,P,R	First	Peak	End		1-10**
Pawnee, BC	23-Mar	26-Mar	30-Mar	24-Apr	30-Apr	4-May	red	2-May	7-May	13-May	1	7
Shoshoni, BC	19-Mar	23-Mar	30-Mar	4-May	13-May	16-May	green	25-Apr	1-May	8-May	2	3
Wichita, BC	23-Mar	26-Mar	30-Mar	4-May	7-May	13-May	green	24-Apr	1-May	7-May	2	8
Pawnee, C	25-Mar	28-Mar	5-Apr	26-Apr	2-May	10-May	red	3-May	9-May	15-May	1	7
Wichita, C	25-Mar	28-Mar	5-Apr	6-May	10-May	16-May	green	28-Apr	2-May	4-May	2	9
Cheyenne, C	26-Mar	29-Mar	5-Apr	28-Apr	2-May	7-May	red	9-May	12-May	18-May	1	6
Western, C	25-Mar	29-Mar	5-Apr	28-Apr	2-May	7-May	green	9-May	16-May	20-May	1	6
Lakota, C	23-Mar	26-Mar	5-Apr	6-May	11-May	16-May	green	28-Apr	5-May	9-May		
Pawnee, D	27-Mar	29-Mar	2-Apr	24-Apr	1-May	10-May	red	2-May	9-May	14-May	1	8
Posey, D (pink)	2-Apr	5-Apr	10-Apr	4-May	13-May	18-May	green	28-Apr	4-May	6-May	2	8
Kanza, D (yellow)	2-Apr	5-Apr	9-Apr	6-May	14-May	18-May	green	28-Apr	5-May	9-May	2	5
Navajo, D (blue)	19-Mar	23-Mar	29-Mar	28-Apr	2-May	9-May	green	7-May	14-May	20-May	1	8
Mohawk, D (maroon)	22-Mar	27-Mar	2-Apr	6-May	14-May	19-May	pink	28-Apr	2-May	4-May	2	8
Shoshoni, D (white)	23-Mar	28-Mar	1-Apr	6-May	12-May	18-May	green	25-Apr	1-May	4-May	2	2
Pawnee, GR	23-Mar		2-Apr	26-Apr	1-May	7-May	red	2-May	6-May	11-May	1	6
Shoshoni, GR (blue)	19-Mar	26-Mar	1-Apr	6-May	10-May	17-May	green	28-Apr	3-May	6-May	2	3
Wichita, GR (red)	23-Mar	27-Mar	2-Apr	4-May	8-May	14-May	green	28-Apr	3-May	6-May	2	7

** 3 = low , 5 = moderate, 7 = high

Varieties that shed pollen on Pawnee pistillate bloom

1st Half Pollenizers

- Navajo
- Cheyenne
- Western

2nd Half Pollenizers

- Posey
- Kanza
- Mohawk
- Shoshoni
- Wichita
- Lakota

Percent Nut Set, Butte City

- Pawnee trees adjacent to the pollinizer (Wichita) had an average of 88% nut set.
- Pawnee trees six rows away from the Wichita and adjacent to the Shoshoni had an average of 83% nut set. Shoshoni trees had almost no pollen shed this year in this orchard.
- Wichita pollinizer adjacent to Pawnee had an average of 91% nut set.

Conclusions:

Several commercially acceptable varieties that cross pollinate with Pawnee are grown in our area.

Wichita, Shoshoni, and others are capable of supplying ample pollen for Pawnee, particularly during the second half of Pawnee receptivity.

Alternate bearing characteristic of Shoshoni catkins may make it a less desirable variety for Pawnee.

Pawnee orchards may benefit from the addition of a variety that reliably sheds pollen in the first half of Pawnee receptivity.