Evaluation of Storm for Crop Safety and Efficacy in Winter Pea

I.C. Burke

In the spring of 2020, a winter or fall seeded pea herbicide trial was conducted to evaluate Storm for safety and for efficacy on mayweed chamomile, prickly lettuce, and tumble mustard. Current options for managing mayweed chamomile, prickly lettuce, and tumble mustard are limited to preemergence herbicides that seldom control weeds until crop canopy – a period of time that can often exceed 8 months. A postemergence herbicide with activity on mayweed chamomile, prickly lettuce, and tumble mustard would substantially improve in crop and rotational weed management in an emerging and important crop, winter pea.

Figure 1. Pea and mayweed chamomile response to Storm .

Table 1. *Treatment application details.*

Study Application	
Date	April 28, 2020
Application volume (GPA)	15
Timing	Postemergence
Crop Stage	3 to 5 Tendril
Air temperature (˚F)	51
Soil temperature (˚F)	49
Wind velocity (mph, direction)	4.5, N
Cloud Cover	30

The study was established near Davenport, WA. Treatments were applied when the pea had 3 to 5 tendrils. Treatments were applied with a CO_2 powered backpack sprayer and a 5 ft boom with 4 Teejet 11002VS nozzles with an effective spray pattern of 6 ft and calibrated to deliver 15 gallons per acre (GPA). The study was conducted in a randomized complete block design with 4 replications. Plots were 8 ft by 30 ft long. Treatments were assessed for weed control, weed density, and yield (yield data is not yet final as of this writing). Data were subject to ANOVA using the Agricultural Research Manager software (Ver. 8.5).

Results

Winter pea response to Storm was characterized by reddish spots on the leaves that increased with rate and surfactant aggressiveness. The injury was transient and the winter pea quickly outgrew the injury. Storm, containing the contact herbicide active ingredients acifluorfen and basagran, inhibits both PROTOX and Photosystem II, which causes rapid leaf burn and necrosis in sensitive plants. Winter pea appears to be tolerant to Storm, particularly at typical use rates with of 24 oz/A or less when applied with nonionic surfactant.

Control of mayweed chamomile was variable, and in general, the larger the plant the less likely Storm was to be lethal, regardless of rate. Although statistically similar, control of mayweed chamomile increased with rate of Storm. Timing and temperature of application may have an affect on treatment outcome. In other research, spring pea was more sensitive to Storm, which is attributed to higher temperatures at application. Mayweed chamomile may respond to Storm similarly, with greater control occurring at higher temperatures.

Complete control of tumble mustard was achieved with Storm and comparison treatments, regardless of the rate of Storm. In other trials conducted by Dr. Drew Lyon, Storm did not control flixweed. Scouting for weed species will be critical for determining Storm rate and timing of application.

Table 1. Winter pea injury, Mayweed chamomile and tumble mustard control in response to increasing rates of Storm with different surfactants in a trial located near Davenport, WA, in 2020.

Treatment	Rate	Injury	Mayweed Chamomile Control	Tumble Mustard Control
		5/7/2020	6/4/2020	6/4/2020
		%	%	%
Nontreated		0 d	0 c	0 b
Nontreated – Weed Free		0 d	99 a	99 a
Storm	16 fl oz/A	9 c	68 b	97 a
NIS	0.25 % v/v			
Storm	24 fl oz/A	10 c	74 b	99 a
NIS	0.25 % v/v			
Storm	48 fl oz/A	10 c	79 b	99 a
NIS	0.25 % v/v			
Storm	16 fl oz/A	21 b	81 b	99 a
COC	1 % v/v			
Storm	24 fl oz/A	29 a	76 b	99 a
COC	1 % v/v			
Storm	48 fl oz/A	30 a	81 b	99 a
COC	1 % v/v			
Rhomene	0.5 pt/A	21 b	69 b	99 a
NIS	0.25 % v/v			
Rhomene	0.5 pt/A			
Metribuzin	0.25 lb/a	23 b	64 b	99 a
NIS	0.25 % v/v			

[1] **NIS, Nonionic surfactant; COC, Crop oil concentrate surfactant.**

Disclaimer

Some of the pesticides discussed in this presentation were tested under an experimental use permit granted by WSDA. Application of a pesticide to a crop or site that is not on the label is a violation of pesticide law and may subject the applicator to civil penalties up to $7,500. In addition, such an application may also result in illegal residues that could subject the crop to seizure or embargo action by WSDA and/or the U.S. Food and Drug Administration. It is your responsibility to check the label before using the product to ensure lawful use and obtain all necessary permits in advance.