

Evaluation of PCC170 on Pumpkin Cultivars.

01-17-W70

OBJECTIVE: Evaluate PCC 170 for injury and yield on four pumpkin cultivars.

SUMMARY: There was no consistent phytotoxic response such that one *Cucurbita* species was damaged more than another by PCC 170. There were no differences observed between the three PCC 170 rates with respect to the crop injury observed for the three *Cucurbita* species. Some foliar bleaching was observed until about 30-45 DAP, with little bleaching being observed after that. The lowest rate of PCC 170 did not adequately control the broadleaf weed species observed, especially the various species of *Amaranthus* and ivyleaf morningglory, which related to the low pumpkin yields obtained for this rate compared to the two higher rates evaluated. The 5 pt/A rate controlled the broad-leaved weed species observed similarly to the 6 pt/A rate.

For the *Cucurbita pepo* or Jack-O-Lantern types ('Appalachian' and 'Motherlode'), the 5 pt/A produced greater or similar yields (lb fruit/A). For the *Cucurbita moschata* type ('Buckskin'), the 6 pt/A rate tended to produce slightly higher yields (lb fruit/A) compared to the 5 pt/A rate. Again, for the *Cucurbita maxima* type ('Mammoth Gold'), the 6 pt/A rate tended to produce twice the lb fruit/A compared to the 5 pt/A rate. This may indicate that for *Cucurbita pepo* or Jack-O-Lantern types, the herbicides may be damaging the pumpkin plants to affect their growth, as their growth tended to maximize at the 5 pt/A rate, but for the other two *Cucurbita* species, yields increased as the PCC 170 rate increased.

Pumpkin size was also influenced by PCC 170. For all *Cucurbita* species, the largest-sized pumpkins were observed for the hand-weeded plots, and this treatment will allow one to see the actual size of a particular pumpkin. For PCC 170, the 5 pt/A and 6 pt/A rates had similar sized pumpkins for the *Cucurbita pepo* cultivars, with the 4 pt/A rate producing smaller-sized pumpkins compared to the two higher rates. For *Cucurbita moschata*, pumpkins produced when 4 pt/A were used were much smaller in size compared to the two higher rates. For *Cucurbita maxima*, the 6 pt/A rate produced the largest-sized pumpkins compared to the two other rates, and was similar in size to the hand-weeded treatment.

No PCC 170 rate performed as well as the hand-weeded treatment and all PCC 170 rates provided greater yields compared to the no treatment. It appears from this data, that it would benefit a pumpkin grower to utilize PCC 170. The standard rate of Command did not provide sufficient weed control and even the lowest rate of PCC 170 was superior to Command in most cases. It appears from this data, that the 5 pt/A rate of PCC 170 would be sufficient for the *Cucurbita pepo* types; however, for both the *Cucurbita moschata* and *Cucurbita maxima* cultivars evaluated, the 6 pt/A should be used as it provided the greatest yields with little crop injury.

HERBICIDES

COMMAND 3 ME
PCC 170 2.1 EC

WEEDS

AMASS
DIGIS
IPOHE

CROP

pumpkin:
Appalachian
Buckskin
Mammoth Gold
Motherlode

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PLANT, SOIL AND GENERAL AGRICULTURE DEPARTMENT

SOUTHERN ILLINOIS UNIVERSITY

Evaluation of PCC170 on Pumpkin Cultivars.

Project Code: 01-17-W70 Location: Belleville Research Center

Investigator: Bryan Young, Assistant Professor, Southern Illinois University

City State Zip Country: Belleville IL 62221 USA
Trial Status: Setup Initiation Date: 5-15-01**Objective:**

Evaluate PCC 170 for injury and yield on four pumpkin cultivars.

Weed Code	Common Name	Scientific Name
1. AMASS	amaranth, species	Amaranthus sp.
2. DIGIS	crabgrass, smooth	Digitaria ischaemum (Schreb. ex Schweig)
3. IPOHE	morningglory, ivyleaf	Ipomoea hederacea (L.) Jacq.

Crop 1:	CUCSS PUMPKIN	Variety:	See note
Planting Method:	Seeded	Planting Date:	6-12-01
Rate:	0.25 S/ROW-FT	Depth:	1.0 IN
Row Spacing:	60 IN		

Plot Width, Unit:	5 FT	Plot Length, Unit:	20 FT	Reps:	3
Tillage Type:	Reduced-Till	Study Design:	Randomized complete block		
Previous Crop, Year:	GLXMA, 2000				
Field Prep./Maintenance:	N 50 LB/A, P205 50 LB/A, K20 150 LB/A				

Soil Name:	Ebbert	% OM:	1.6	pH:	6.1	CEC:	13
Texture:	Silt loam	Fert. Level:	P1: 53 LB/A, K: 259 LB/A				

APPLICATION DESCRIPTION**A**

Application Date:	6-14-01
Application Method:	Spray
Application Timing:	PRE
Applic. Placement:	BROSOI

CROP STAGE AT EACH APPLICATION**A**

Crop 1 Code, Stage:	CUCSS NA
Height, Unit:	NA NA

WEED STAGE AT EACH APPLICATION

NA

APPLICATION EQUIPMENT**A**

Appl. Equipment:	CO2 sprayer
Operating Pressure:	40 PSI
Nozzle Type:	Flat fan
Nozzle Size:	8003
Boom Length, Unit:	4.5 FT
Spray Volume, Unit:	20 GPA

NOTES: HARVESTED 9-1-01 AND 9-27-01.

Pumpkin cultivars are: Appalachian, Motherlode, Buckskin, and Mammoth Gold, see treatment list.

Table. Influence of PCC 170 on yields of various species of pumpkin during 2001 at Belleville, IL. (Walters, Krausz, Matthews and Young)

Treatment	Rate (pt/A)	Pumpkin			Crop injury, days after planting								Control, days after planting								
					Bleaching				Stunting				AMASS			DIGIS			IPOHE		
		Fruit (no./A)	Fruit weight (lb/A)	Fruit weight (lb/pumpkin)	14	28	56	75	14	28	56	75	28	56	75	28	56	75	28	56	75
			%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%		
<i>Cucurbita pepo</i> 'Appalachian'																					
Handweeded		2632	31309	11.8	0	0	0	0	0	0	0	0	100	100	100	100	100	100	100	100	100
Nontreated		545	3417	6.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Command	0.67	1180	10454	8.3	2	0	0	1	0	0	2	2	23	33	23	94	90	93	7	37	7
PCC 170	4.0	1452	13522	9.3	0	0	3	0	0	3	0	0	73	73	30	97	95	90	27	50	13
PCC 170	5.0	1634	18304	11.5	8	0	3	1	0	0	0	0	89	96	94	97	96	96	30	83	83
PCC 170	6.0	1361	13386	10.0	0	0	0	0	0	0	0	0	83	91	94	99	96	97	37	73	78
<i>Cucurbita pepo</i> 'Motherlode'																					
Handweeded		2723	37289	14.0	0	0	0	0	0	0	0	0	100	100	100	100	100	100	100	100	100
Nontreated		635	6080	9.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Command	0.67	363	4075	9.0	0	0	0	0	0	3	0	0	0	7	35	94	92	93	0	17	5
PCC 170	4.0	817	8222	7.8	0	0	4	0	0	0	0	0	78	70	33	97	95	93	10	15	10
PCC 170	5.0	1452	16126	10.8	2	0	2	1	0	0	0	0	88	90	90	98	97	98	30	68	70
PCC 170	6.0	1497	16621	10.5	0	0	1	2	0	0	0	0	90	95	87	99	97	96	20	40	82
<i>Curcubita moshata</i> 'Buckskin'																					
Handweeded		2813	21263	7.2	0	0	0	0	0	0	0	0	100	100	100	100	100	100	100	100	100
Nontreated		136	912	6.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Command	0.67	545	3444	7.0	0	13	0	0	0	15	0	0	43	40	3	92	90	92	0	25	3
PCC 170	4.0	726	3267	4.7	0	8	0	0	0	0	0	0	75	55	25	96	95	90	20	10	10
PCC 170	5.0	1089	6834	6.2	0	0	0	2	0	0	0	0	85	85	94	99	95	97	30	30	80
PCC 170	6.0	1271	8576	6.6	0	5	0	1	0	2	0	0	82	83	97	99	95	98	23	57	88
<i>Curcubita maxima</i> 'Mammoth Gold'																					
Handweeded		1452	21526	12.8	0	0	0	0	0	0	0	0	100	100	100	100	100	100	100	100	100
Nontreated		272	681	2.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Command	0.67	545	3213	5.9	3	0	0	0	0	3	0	0	0	0	0	92	88	90	0	15	0
PCC 170	4.0	635	4710	7.6	0	0	1	0	0	2	0	0	78	72	28	97	95	90	40	30	20
PCC 170	5.0	681	6670	9.1	0	0	0	1	0	3	0	0	80	90	90	99	97	95	10	30	10
PCC 170	6.0	1089	13844	11.7	0	0	0	0	0	8	0	0	92	83	88	99	95	97	30	53	88
LSD(P=0.05)		1327	14195	4.5	NS	4	2	NS	-	5	NS	NS	22	25	42	5	3	4	18	40	46