

PLANT & PEST ADVISORY

CRANBERRY EDITION \$1.50

JULY 5, 2000



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Answers to Common Nutrition Questions: Potassium

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Reprinted from Wisconsin Cranberry Crop Management Newsletter, June 5, 2000.

A. What is the role of K in plant growth? Potassium does not have a direct role in plant metabolism. It is not involved in proteins or membranes. It is primarily used to balance charges and as an osmoticant (used to move water from place to place). K is important to stomata opening and closing and in the movement of sugars from one place to another in the phloem.

B. What is the optimum timing for K application? Because K+ will leach it is important to have frequent light applications of K as opposed to 2-3 large applications at "critical" times. In Wisconsin, research on different timings for K fertilizer did not affect yield or rot.

C. Do I need more K on sand than peat beds? Probably. However, I don't know of research on this question.

D. How much K is required annually? Research showed yield differences related to K rate in only 1 of 4 years. There was no relationship between K rate and tissue K. Interestingly, yield was reduced at high K rates (240 lbs K/a). 60-100 lbs K/a/yr appears sufficient. High K was correlated with decreased Ca, Mg, & Fe. Apparently, high K applications exchanged other cations off the exchange sites in the soil. I would determine that through tissue testing in the late summer. If you know how much K you have applied and what the tissue concentration is, then you can adjust up or down as needed the following year.

E. Are there cultivar differences in K requirement? Not that I am aware of. However, substantial amounts of K are removed in the crop so I would feed a heavy producing bed more K than a light producing bed.

F. Can I minimize K leaching on sandy soils? The only approach I know of is to be cautious with other cation nutrients (Ca, Mg, Fe) and then over time an organic duff layer will form. This layer will have more exchange sites and will hold onto K (and other cations) better than sand.

G. What forms of K are available? See Question J below. Is one better than another on sandy soils or new plantings? In all cases potassium sulfate is preferred over potassium chloride.

See Potassium on page 2

H. Can I optimize K uptake in soils with high Ca and Mg? Frequent light applications of K would allow it to be more available than 1-2 heavy applications. K will compete with Ca and Mg for exchange sites. Overapplication of Ca and Mg will reduce K availability. However, see Question D above.

I. Foliar applications of K during bloom and early fruit set? Research shows no effect of timing on yield. Research also shows no effect of different products when applied at the same rate of K.

J. What is the difference between 0-0-50 and 0-0-60? 0-0-50 is potassium sulfate (KSO4) and 0-0-60 is potassium chloride (muriate of potash, KCl). Cranberries are sensitive to chloride, so the sulfate form is preferred.

K. Will early applications of 0-0-60 vs. 0-0-50 adversely affect production? Since cranberries are sensitive to Cl, at high rates 0-0-60 may cause some injury. There isn't research to support this that I know of, but grower experience does. Always choose the sulfate form. There are no data to support early application of potassium causing better fruit set or yield. □

Insect Update

Sridhar Polavarapu, Ph.D., Entomology and IPM

✓ **Spotted fireworm:** In most of our monitoring sites, more than 90% of the egg masses have hatched. If you were planning on using Confirm 2F for managing spotted fireworm during bloom, you should apply this insecticide now. Confirm 2F is somewhat slower in bringing larval death than the organophosphates we have been using. Often two applications may be necessary, especially to suppress moderate to heavy infestations. If a second application is required, it should be applied 7-10 days after the first application.

✓ **Blackheaded fireworm:** Egg hatch is more or less complete at this time. Most larvae are in the second or third instar stage. If you have not seen larval infestations by now, it is more than likely that you are not going to see an infestation this season. If an insecticide treatment is required, Confirm 2F can be applied at this time.

✓ **Sparganothis fruitworm:** Eggs are hatching for the past few days. Confirm 2F applied for spotted fireworm or blackheaded fireworm will also suppress sparganothis fruitworm larvae that are hatching at this time.

✓ **Blossom worm:** Late instar larvae are still present in some locations. Although Confirm 2F may not be most effective on these large larvae, you may not have the option of using an organophosphate for another 5-10 days. Consider using Confirm 2F only if the populations are extremely high (>12 per sweep set). □

Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged near normal. Extremes were 92 at several locations on the 27th and 48 degrees at Charlotteburg on the 1st. Weekly rainfall averaged 0.49 inches north, 0.19 inches central, and 1.69 inches south. The heaviest 24 hour total was 2.00 inches at Pomona on the 28th to the 29th. Estimated soil moisture, in percent of field capacity, this past week averaged 75 percent north, 50 percent central and 75 percent south. Four inch soil temperatures averaged 71 degrees north, 74 degrees central and 75 degrees south.

Weather Summary for the Week Ending 8 am Monday 7/03/00										
WEATHER STATIONS	RAINFALL			TEMPERATURE				GDD BASE50		MON %FC
	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	
BELVIDERE BRIDGE	.66	20.20	4.53	86	54	71.	0	1019	98	73
CANOE BROOK	.26	13.74	-3.04	91	55	73.	2	1134	232	64
CHARLOTTEBURG	.44	17.67	.68	89	48	68.	0	805	94	67
FLEMINGTON	.13	15.87	-.20	91	54	72.	0	1163	229	64
LONG VALLEY	.94	17.42	.23	84	55	69.	0	892	116	77
FREEHOLD	.11	11.38	-4.36	92	60	75.	3	1242	213	52
LONG BRANCH	.22	14.54	-1.22	88	55	71.	-1	1050	92	34
NEW BRUNSWICK	.07	14.85	-.54	91	56	74.	0	1199	103	62
PEMBERTON	.30	13.79	-1.51	92	55	74.	1	1637	573	33
TOMS RIVER	.42	14.68	-1.02	91	56	73.	0	1182	225	42
TRENTON	.02	13.10	-1.30	89	57	73.	-1	1257	112	41
CAPE MAY COURT HOUSE	.98	14.97	1.07	90	59	73.	0	1222	184	45
DOWNSTOWN	2.05	15.34	1.12	92	58	74.	0	1309	147	75
GLASSBORO	1.05	15.75	.38	91	58	75.	1	1404	263	71
HAMMONTON	2.03	14.54	-.47	90	57	74.	0	1257	123	77
POMONA	2.16	14.00	.41	92	57	73.	1	1204	163	78
SEABROOK	2.44	17.22	3.52	92	60	74.	0	1390	221	80
ATLANTIC CITY MARINA	1.09	14.21	1.21	89	64	73.	1	1213	242	52
SOUTH HARRISON	1.23	19.62	4.22	89	60	74.	NA	1401	NA	NA
WES KLINE — GDD BASE 40 PINEY HOLLOW	Last Week 236 (Ending 6/26/00) This Week 240 (Ending 7/03/00)									

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