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### POTASSIUM HAS COME INTO ITS OWN IN THE WEST

**Higher yields...higher market standards...continuous cropping...What does it mean?** For one thing it means that many western soils are no longer blessed with large reserves of plant available potassium. More and more we are seeing research and demonstration programs illustrating the benefit of increased potassium fertilization in our western states.

**In California, for example, research on nut crops is producing big dividends.** Potassium fertilization of pistachios in each of three different commercial fields studied over three years produced substantially higher yields and better crops. The nuts were bigger, with fewer blanks and less staining. A similar research project has been initiated with almonds. Although yield data are not yet available, the trees not receiving potassium fertilization are clearly showing foliar potassium deficiency symptoms.

**Another important western crop is processing tomatoes.** In this case yield responses to potassium have been calibrated to soil testing, including testing for exchangeable K and the ratio of exchangeable magnesium to potassium. An interesting finding deals with quality of the tomatoes. Uniformity of color is important for peeled fruit, whether used whole or diced. Color disorders, such as yellow shoulder (an external symptom), and internal white tissue can render the fruit unsuitable. Research revealed that maximizing the color of tomatoes clearly required greater potassium supply than that needed for maximum fruit yield.

**Maximizing color has another benefit...a very important one.** Tomatoes are a functional food. That is, they contain a substance or substances ...referred to as nutraceuticals... that have specific health benefits beyond normal nutrition. The substance is lycopene, one of a group of compounds that give tomatoes red color. Lycopene reduces the risk of some cancers...and research has shown that fertilizing with potassium increases lycopene content. So not only does potassium make tomatoes look better, but it also makes them healthier. Talk about a one, two punch!

**Cotton growers in the west are using more potassium than ever before.** Actually the breakthrough came during the late 1980s when mid-season abnormalities...the upper leaves of the cotton plant curled and turned bronze during boll formation...were definitely identified as serious potassium deficiency. Researchers in California went on to recommend up to 400 pounds of potash per acre on soils that tested low in available potassium or were classified as high potassium "fixers". Meeting the potassium requirements of the plant dramatically increased yield and lint quality in many cases. This research refocused interest on potassium nutrition of cotton not only in the west, but across the entire Cotton Belt as well.

**Alfalfa has a high demand for potassium because of potassium's role in protein synthesis.** Potatoes and grapes, two more important western crops, need large amounts of potassium for carbohydrate synthesis. Recent research programs in several western states have resulted in substantially higher rates of potassium being applied to these crops than ever before.

**Many of us do not think of rice as a major western crop.** But there are many acres of high yielding rice grown in California. Researchers are right now re-evaluating the role of potassium for this crop. If experience with other crops is any indication, growers will be increasing their rates of potassium fertilization shortly.

Other success stories with potassium could be cited. But you get the idea. Potassium has come into its own in the west.

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