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### RE-EVALUATE YOUR POTASSIUM APPLICATION FOR NEXT YEAR

**In many Western soils, the importance of maintaining adequate levels of potassium is frequently overlooked.** The rocks and minerals that formed many of the soils in this region were once naturally high in potassium. When these soils were first farmed, there was little response to added potassium in many cases.

**Many years of high-yielding crop production has resulted in gradual mining and depletion of this resource.** For example, an annual alfalfa hay yield of 8 tons per acre will remove nearly 500 pounds of  $K_2O$ . A potato yield of 400 cwt per acre accumulates over 400 pounds of  $K_2O$ . When high-yielding crops are continually harvested and removed from the field, the native potassium resource finally becomes depleted and exhausted. Even where some potassium-rich minerals remain in the soil, they frequently cannot release their nutrients at a rate to meet the peak demand periods of a rapidly growing plant.

A recent study examined the extent of potassium depletion in the Western U.S.—the balance between soil potassium removal by crops and replacement with potassium fertilizer. **Here's what it found.**

- **Arizona, 4.4** times more removal than replacement
- **Idaho, 4.3** times more removal
- **Oregon, 2.2** times more removal
- **Washington, 2.6** times more removal
- **California, 2.0** times more removal
- **Montana, 6.8** times more removal
- **Utah, 5.2** times more removal
- **Wyoming, 9.2** times more removal

**It is clear that in every Western state, we are rapidly depleting soil potassium reserves.** While these averages do not represent every individual field, the overall trend simply cannot continue indefinitely if we want to maintain our current yields.

**Inside the plant, potassium is vitally important for many enzymes involved in photosynthesis, organic compound synthesis, translocation of important plant materials, and maintaining proper water balance.** Since potassium is mobile in the plant, deficiency symptoms appear first on the oldest leaves as yellowing around the leaf margin or specks between the leaf veins. However, once deficiency symptoms are visible, plant growth has already declined and the crop continues to lose yield each day.

**Regular soil testing is the best way to predict the amount of potassium available for next year's crop and decide on appropriate nutrient replacement rates.** If this is not possible, keep in mind the amount of potassium removed in past crops and anticipated yields for the coming year. Don't wait until deficiencies occur before replenishing the supply of this essential plant nutrient with potassium fertilizer.

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