

Potato Hair Sprout

disorder of potatoes causes problem for processors and seed producers

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has become a problem to the chipping industry as well as to the certified seed producers.

Hair Sprout has been observed in the United States since 1909, but it has not been related to a definite cause. It has been reported that certain potato diseases, such as Aster Yellows, and—in recent studies—gamma-ray irradiation by use of atomic energy, can produce abnormal sprouts.

Studies Continuing

Field plot tests are being conducted to determine whether Hair Sprout can be caused by high soil temperatures, low soil moisture—or both. Biochemical studies also are being made to explain the high sugar content and abnormal respiratory pattern.

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Hair Sprout—a disorder of potatoes that has been increasing in California during the past few years—is characterized by long thin sprouts produced by the tuber. The sprouts often produce small aerial tubers.

When used for seed, affected potatoes produce plants which are weak, small, and spindly. These plants fail entirely to produce or they form only small tubers, so the yield is greatly reduced.

Abnormality Studied

Studies have shown that affected tubers respire significantly less than normal tubers. This might explain why tubers which produce only Hair Sprout seem to store better than tubers producing normal sprouts. Chemical analysis reveals that White Rose potatoes with Hair Sprouts were high in both reducing and nonreducing sugars. Normal potatoes had a content of 0.18% reducing and 0.26% total sugars while the abnormal tubers analyzed 0.55% reducing and 1.15% total sugars.

Tests also showed that abnormal tubers were lower in specific gravity than normal tubers from the same lot. In one lot of White Rose potatoes, 18% showed Hair Sprouts when subsequently sprouted. Of these affected tubers 82% had a specific gravity of less than 1.065, while only 26% of the normal tubers fell in this range. By flotation in a brine solution of 1.065 specific gravity, the

percentage of tubers showing this disorder could have been reduced to 5%.

High sugars in potatoes are known to cause very dark-colored potato chips which are not acceptable. Potato chip producers have noted that in certain lots of potatoes a percentage often fry to a very dark color and—because they are not acceptable—must be removed manually from the production line, entailing additional expense in packaging. Normally the affected tubers cannot be detected before chipping because they have not sprouted. Part of the dark chip problem of processors may be caused by potatoes which would produce Hair Sprout.

Since potato chips constitute approximately 15% of the total potato consumption in the United States, Hair Sprout

Left: Normal White Rose plant. Right: Plant from Hair Sprout potato tuber. Note the weak stems and poor tuber formation of affected plant.

White Rose Hair Sprout potato. Note the aerial tuber.

