Research To Extend Shelf-Life Of Mushrooms

UNIVERSITY PARK — Research at The Pennsylvania State University may lead to a new method of marketing fresh mushrooms that could increase their shelf-life, price and consumer demand.

Storing mushrooms at temperatures between 32 and 38 degrees Fahrenheit could extend mushroom shelf-life by as much as five days, according to Dr. Robert B. Beelman, professor of food science.

"With this project we want to demonstrate what improvements in shelf-life could be made by controlling temperature and using a separate storage unit," Beelman said. "Mushrooms are more perishable than most produce. With hard data like this we hope to convince grocery managers to adopt a different style of displaying mushrooms."

Beelman's research is partially funded through a challenge grant from the Advanced Technology Center of Central and Northern Pennsylvania Inc., Ben Franklin Partnership.

Washed mushrooms deteriorate even more readily than dry-packed mushrooms, Beelman said, especially when stored at elevated temperatures. "This is mainly due to bacteria," he added. "These bacteria like humid conditions. As a result the growth rate of bacteria is higher with an increase of moisture at a higher temperature."

"Grocery store marketing has been heading toward mass display of produce," he said. "Maybe to increase the impulse purchase or the idea of 'great bounty' or eye appeal. But as mushrooms deteriorate, their eye appeal goes down and the consumer is less likely to buy them."

Beelman will test the effectiveness of an open-faced refrigeration case — a Pinnacle Upright Merchandiser — in maintaining the low temperatures needed to slow mushroom decay.

The PUM looks like the freezer cases now present in grocery stores, but without the door, he said, adding: "An air curtain is in front. Cold air blows up the front. It keeps the mushrooms cold but doesn't impede the consumer from reaching in and grabbing."

"We're really just getting started on this. We want to assess whether the PUM will keep them cold when filled with the product.

"We also want to test how efficiently the PUM uses electricity. The mushroom grower would provide the unit and would need to show test results of the amount of energy per week it uses. Perhaps it's less than the unit that stores them now, even with the lower temperature employed."

Beelman said he will also test new additives for use in washing mushrooms. Sodium sulfite had been used to wash mushrooms before the FDA banned the chemical in August. "So now it is difficult to wash the product and have it look nice," he noted. "The sulfite had helped in preventing browning."

The Sno-Top Mushroom Farm Inc., Wampum, Pa., is cooperating in Beelman's research. He said that research in cooperation with Penn State plant pathologists has "come up with a number of things they can do to manipulate the growing process to extend the shelf-life. It has to do with the number of bacteria on the mushrooms when harvested due to the way they're watered."

Sno-Top workers have begun using some of the Penn State recommendations, according to Michael Swanik, company president.

"We're trying to make observations about the effects by noting color, cleanliness and shelf-life," Swanik said. "But at this stage it may be too soon to tell. We're only a month or so into this project. But the initial impressions we get are favorable."

The increased mushroom shelf-life would enable companies such as Sno-Top to deliver less frequently to grocery stores. "They want to increase the time that mushrooms will look good," Beelman said. "So that instead of a twice-a-week delivery they could deliver once a week."

"Part of the problem with the mushroom industry is overproduction or underconsumption, depending on how you look at it. Improvements in growing practices have resulted in a high yield which means low prices for the growers. But the consumer still pays a high price because the grocery store has a lot of loss."

Swanik said he hopes the Penn State research will help his company to sell a larger percentage of its mushrooms on the fresh market. "We'd like to induce more people to eat mushrooms and induce people to eat more mushrooms. We want to increase consumption as well as the price growers get for their mushrooms."

Burleigh Tops Wayne County DHIA

HONESDALE — Kevin Burleigh, Pleasant Mount had the leading dairy herd in the Wayne County Dairy Herd Improvement Association in the December test period, according to the Wayne County Cooperative Extension Service. The herd of 44 Holsteins had a rolling herd average of 21,002 pounds of milk and 855 pounds of fat.

Other top herds were: James Slocum, Susquehanna, 20,164 milk and 806 fat; Jack and Ella Chyle, Pleasant Mount, 20,271 milk and 732 fat; Charles P. Dennis, Honesdale, 20,154 and 713 fat; Kinghill Farm, Starrucca, 17,652 milk and 709 fat; Rowe Brothers, Honesdale, 19,506 milk and 701 fat; Golden Willow Holstein, Honesdale, 20,749 milk and 700 fat; Robert Fielding and Son, Lake Ariel, 18,732 milk and 696 fat; Paul Kennedy, Honesdale, 20,317 milk and 686 fat; and James Woodmansee, Lake Como, 17,919 milk and 682 fat.

The cow completing the highest lactation of 305 days or less during the December test period was a 4-year-old Holstein owned by Kevin Burleigh, Pleasant Mount. "Ellen" produced 23,377 pounds of milk and 1,281 pounds of fat.

Other top producers were number 5 owned by Michael Nebzydoski, Pleasant Mount, 23,498 milk and 992 fat; "Tillie" owned by Robert Fielding and Son, Lake Ariel, 23,024 milk and 918 fat; "Taffy" owned by Paul Harrison and Sons, Moscow, 24,995 milk and 905 fat; "Flossie" owned by Don B. and Wm. R. Bryant, Honesdale, 23,290 milk and 904 fat; "Lynn" owned by Anthony Worobey, Preston Park, 24,206 milk and 881 fat; "Glenda" owned by Kevin Burleigh, Pleasant Mount, 21,053 milk and 876 fat; "Babe" owned by Allan Schnakenberg, Equinunk, 18,428 milk and 857 fat; "Cher" also owned by Allan Schnakenberg, 19,630 milk and 852 fat; and "Ora" owned by George Schmidt, Preston Park, 24,016 milk and 842 fat.