

# Stall Barn Management Factors

In spite of the increase in free stall housing, the conventional stall barn continues to be favored by Pennsylvania dairymen who operate family sized farms, according to Penn State dairy officials.

Therefore, investigations concerned with the best method of using bedding and rubber mats in stalls have been continued at the Dairy Production Center.

Over the past 10 years, bedding requirements have been reduced to one-half, or less, by the installation of commercial rubber mats.

However, other factors involved in managing today's dairy cattle can reduce, or even eliminate, the advantage of savings in bedding when health and sanitation problems are increased. Several of these management factors were investigated in studies conducted during the past three years under winter housing conditions.

Observations in recent studies indicate that management practices hold the key to stall barn

bedding economics, rather than with the larger breeds, Holstein and Brown Swiss.

**Experiment Conducted**  
Lactating cows housed in 160 individual stalls were checked weekly over a 10-week study period for visible hock injuries. Five breeds of dairy cattle were observed under various stall and bedding management conditions. Several hardwood products — chips, shavings, coarse and medium particle sawdust — were used for bedding. Approximately one-half of the stalls were equipped with commercial rubber mats.

The degree of hock injury was most noticeable under the following conditions: (1) when large amounts of bedding were applied to rubber mats; (2) where uneven distribution of bedding caused accumulations to occur in the forward portions of stalls; (3) when even small quantities of hardwood chips or shavings were used; and (4) where wet bedding conditions existed. Severity of hock injury was great-

er in stalls with the larger breeds, Holstein and Brown Swiss.

Incidence of visible hock injury was negligible where medium particle sawdust was used in combination with good stall management conditions.

Coarse sawdust particles, hardwood chips, and hardwood shavings exhibited a tendency to roll on smooth surfaces during normal up and down movements of cows. This rolling effect caused abrasive action to hock areas. When the cows were lying down, coarse hardwood shavings and chips often caused skin punctures due to the high ridged areas of rubber mats.

Moisture from leaking water bowls and urine accumulation of cattle housed in improperly adjusted stalls also helped to aggravate hock inflammations.

Bedding economy studies were conducted during two winter housing seasons to compare gutter grates versus open gutters in two 40 cow stall barns.

All stalls were equipped with rubber mats.

Daily bedding applications ranged from 1.6 pounds per cow in gutter grate equipped groups to 23.4 pounds per cow in open gutter groups. Up to 44.5 percent of the sawdust was applied directly to open gutters for management purposes in the latter groups.

**Adjust Water Bowl**  
Several interesting, and similar, patterns of observation were disclosed during the two-year study.

Cleanliness of cows in all

groups was related to two management factors—adjustment of stall facilities to individual cows and adjustment of water bowls to prevent leakage and spillage problems, rather than to the amounts of bedding applied daily per cow.

Staining of cows was also a problem in low bedding groups where manure accumulations existed on grates.

**Gutter Grates—Fewer Problems**  
During the first year eight cows were treated for hock injury, three contracted foot rot problems, and three cows sustained severe udder injuries from jumping gutters when entering stalls in the open gutter barn.

During the second year's study twelve cows developed hock injuries, three cases of foot rot were treated, and four udder injuries resulted from jumping

open gutters in these same unlimited bedding groups.

In comparison, no udder injuries were reported and no new cases of foot rot developed over the two year study period in the low or restricted bedding groups where stalls were equipped with gutter grates.

Hock injury treatments were reported for three cows during the first year and four cows during the second year.

These latter cases of hock injury were directly attributed to wet stall conditions where moisture accumulations were a constant management problem.

These findings were reported earlier this year by A. E. Branding, Research Assistant in Dairy Science; W. H. Cloninger, Associate Professor of Dairy Production; and H. D. Bartlett, Professor of Agricultural Engineering.

## Sundaes, a Good Way To Go With Ice Cream

Americans invented the sundae.

And Yankee ingenuity is still at work devising luscious ways to top ice cream.

Three tempting examples are Praline Sauce—which is the famed Southern candy, fluffy Marshmallow Sauce, and that old smoothie, peanut butter in a saucy new guise.

Stir one up next time you serve ice cream.

**Praline Sauce:** In a 1-quart saucepan melt ¼ cup (½ stick) butter, add ¾ cup broken pecans and saute until lightly toasted. Add ½ cup firmly packed light brown sugar and 2 tablespoons light corn syrup, cook over medium heat, stirring constantly, until mixture boils and sugar is melted. Gradually add ½ cup evaporated milk. Remove from heat, blend in ½ teaspoon vanilla. Yield 1½ cups.

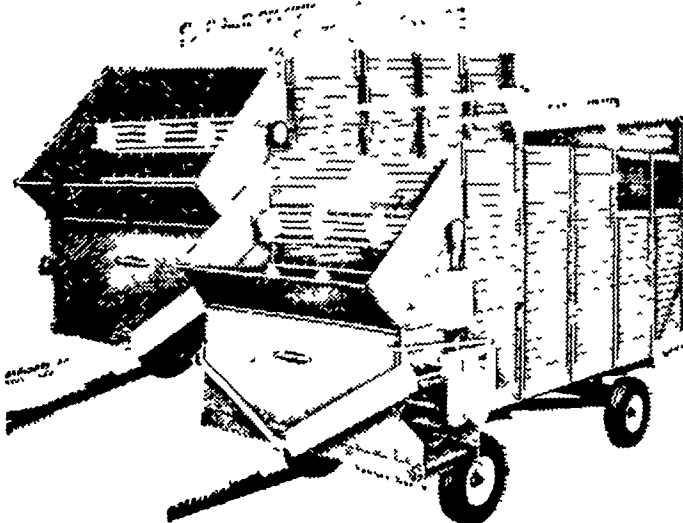
**Marshmallow Sauce:** In 1½-quart saucepan combine ½ cup sugar, ¼ cup water and ¼ cup light corn syrup. Bring to boil, reduce heat and simmer 5 minutes. Remove from heat, add 1 cup miniature marshmallows and stir until melted. In small mixing bowl beat 2 egg whites until soft peaks form. Continue to beat while gradually adding hot syrup. Cover and chill. If sauce separates, mix until smooth. Yield 2½ cups.

**For Marshmallow Mint Sauce:** After adding syrup to egg whites, blend in ½ teaspoon peppermint extract and a few drops of green food coloring to tint pale green.

**Peanut Butter Ice Cream Sauce:** In 1 quart saucepan combine 1 cup sugar, ½ cup water and ¾ cup light corn syrup, bring to boil and cook over low heat until 220° F on candy thermometer. Remove from heat or candy thermometer. Place ¼ cool without stirring to 100° F.

cup peanut butter in small mixing bowl, gradually add syrup while beating at medium speed. If sauce is refrigerated, warm to room temperature before serving. Yield 1½ cups.

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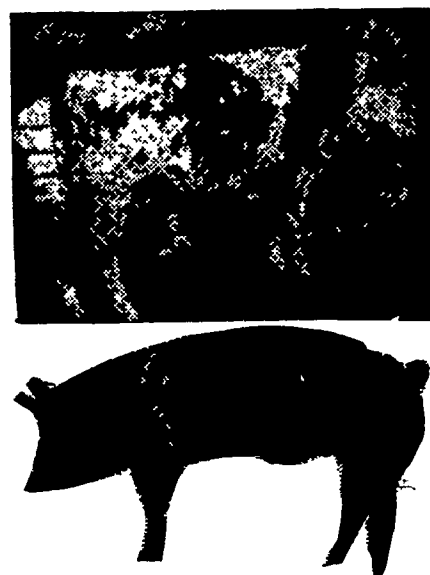
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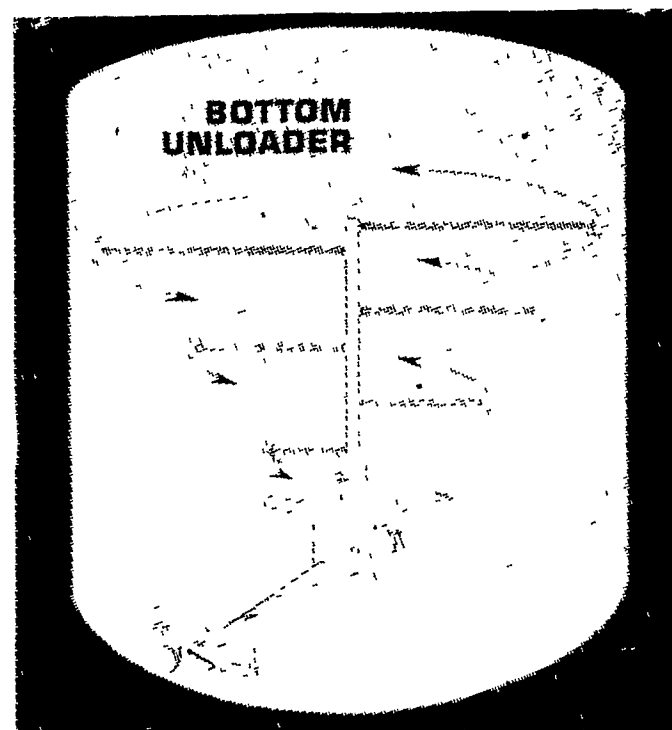
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