

## Feeding Programs in High Producing Dairy Herds

**Randy Shaver<sup>1</sup> and Robert Kaiser**  
**Department of Dairy Science**  
**University of Wisconsin – Madison**  
**University of Wisconsin – Extension**

### Abstract

The feeding and management practices of six Wisconsin high-producing freestall-parlor dairy herds were surveyed during the winter of 2004. The number of milking cows ranged from 276 to 566 and RHA milk ranged from 29,055 to 31,195 across herds. Milking frequency was 4x for one herd, 4x and 3x for one herd, and 3x for four herds. Four of the six herds used sand bedding. Bunk space and stall stocking density for high-production groups ranged 1.2 to 2.1 ft. per cow and 100% to 122% across herds. All herds maintained two dry cow groups, but half of the herds fed only one dry cow diet. All herds fed total mixed rations. Across herds, forage in diets for high-production groups ranged from 45% to 53% (DM basis) and was comprised of 41% to 68% corn silage (DM basis). Whole cottonseed was fed in all herds, while high-moisture shelled corn was fed solely in three herds, dry shelled corn solely in two herds, and a mixture in one herd. Dietary CP and P formulations for high-production groups ranged from 17.0% to 18.5% and 0.37% to 0.41% (DM basis), respectively, across herds. Analysis of High Group TMR samples for CP and P ranged from 16.7% to 18.4% and 0.35% to 0.44% (DM basis), respectively, across herds. Estimated average feed efficiency (bulk-tank milk/feed) and feed cost per cwt. bulk-tank milk ranged from 1.57 to 1.70 and \$4.01 to \$4.50, respectively, across herds.

### Introduction

AgSource DHI reported 37 Wisconsin dairy herds with RHA milk ranging from 30,000 pounds to about 34,000 pounds per cow at year-end 2003. The purpose of this paper is to report on a survey of feeding and management practices that was conducted in a subset of these high-producing dairy herds.

### Survey Methods

Six Wisconsin freestall-parlor dairy herds with RHA milk of about 30,000 pounds per cow were surveyed for their feeding and management practices. This survey represents a snapshot in time, and herd visits and data collection were for the January-February, 2004 time period.

Herd managers, and their respective nutritionists, were interviewed during our herd visit utilizing a common survey form designed to collect information on feeding and management practices. Herd nutritionists provided diet ingredient and nutrient specifications along with corresponding forage test results. Pen intakes were estimated from discussions with nutritionists and managers, and feed efficiencies (milk/feed) were calculated. Feed costs were calculated using common corn silage, alfalfa silage, alfalfa hay, and corn grain prices (\$70 per ton DM, \$70 per ton DM, \$120 per ton as fed, and \$2.50 per bushel, respectively) across herds, and prices for

---

<sup>1</sup> Contact at: Room 280, Animal Sciences Building, 1675 Observatory Drive, University of Wisconsin, Madison, WI 53796, (608) 263-3491, FAX (608) 263-9412, Email: rdshaver@facstaff.wisc.edu.

all other dietary ingredients were as provided by nutritionists and(or) managers. High Group TMR's were evaluated using the NRC (2001) Model. All survey herds were enrolled in DHI milk testing programs, and herd summary sheets were a major data source. Bunk space and water space were determined by making physical measurements and counting cows within pens.

Samples of corn silage, alfalfa silage, corn, and High Group TMR were obtained during our visits. Fermentation profile analyses of corn silage, alfalfa silage, and high-moisture corn samples (shipped on ice) were performed using HPLC by Dairyland Laboratories (DLL; Arcadia, WI). Particle sizes of dry and high-moisture corn samples were determined at DLL. Kernel processing score (% of starch passing thru 4.75 mm sieve) was determined on corn silage samples by DLL. At University of Wisconsin Soil & Forage Analysis Laboratory (UWFTL; Marshfield, WI) particle size using the Penn State Separator Box and UW Recommended (standard NIR with wet chemistry NDF, NDFD, and ash for summative energy calculations) analyses were performed on corn silage and alfalfa silage samples. The RUP of alfalfa silage samples was determined at UWFTL using NIR calibration from ruminal in situ dacron bag data. Also, at UWFTL wet chemistry "TMR Quality Control" analyses (includes NDFD) and particle size analyses using the Penn State Separator Box were performed on High Group TMR's. The procedure used to sample TMR's on the farms was as follows (Pat Hoffman, personal communication): 1) mix TMR as per normal procedures, 2) distribute High Group TMR in bunk, 3) immediately fill a 5-gallon bucket with handfuls of TMR from the top, middle and bottom of the TMR windrow across the entire length of the TMR windrow, 4) tip the 5-gallon bucket upside down on a large clean surface and lift the bucket up, 5) with a thin piece of wood or sheet metal, cut the coned TMR sample in half, and 6) discard one half of the sample and submit the other half for analysis.

## **Results**

General herd information is presented in Table 1. General feeding and management information by groups within herds is presented in Tables 2 – 7b. Refer to Tables 8, 9, 10, and 11 for analytical data for alfalfa silage, corn silage, corn grain, and High Group TMR's, respectively. Ingredient and nutrient composition of formulations are presented in Tables 12a – 18b. These tables also provide DM intake, feed efficiency, and feed cost estimates. Results of NRC (2001) Model evaluation of High Group TMR's appear in Table 19.

**Table 1. General information for six selected high-producing WI dairy herds surveyed during Jan.-Feb., 2004.**

| <b>Item</b>                    | <b>HensenBros Dairy Inc.</b> | <b>Koepke Farms Inc.</b> | <b>Rosy Lane Holstein LLC</b>          | <b>Crave Bros. Farm</b>                       | <b>So-Fine Bovines LLC</b>         | <b>Oechsner Farms</b>          |
|--------------------------------|------------------------------|--------------------------|--|---|------------------------------------|--------------------------------|
| Location                       | Waunakee                     | Oconomowoc               | Watertown                              | Waterloo                                      | Westfield                          | Brownsville                    |
| DHI No. of Cows Milking        | 291                          | 276                      | 482                                    | 566   | 398                                | 364                            |
| DHI RHA Milk, lb               | 30,780                       | 31,195                   | 31,192                                 | 29,055  | 30,405                             | 30,284                         |
| DHI MLM, lb/cow                | 101                          | 100                      | 100                                    | 90  | 103                                | 94                             |
| DHI Cow Peak, lb/cow           | 130                          | 134                      | 142                                    | 123   | 134                                | 119                            |
| DHI Heifer Peak, lb/cow        | 95                           | 96                       | 106                                    | 94  | 96                                 | 88                             |
| Times Milked                   | 3x                           | 4x, 3x                   | 3x                                     | 4x  | 3x                                 | 3x                             |
| Bulk Tank, Milk lb             | 90                           | 92                       | 90                                     | 90  | 92                                 | 94                             |
| , % Fat                        | 3.8                          | 3.7                      | 3.8                                    | 3.7   | 3.8                                | 3.7                            |
| , % True Protein               | 3.0                          | 3.0                      | 3.0                                    | 3.0   | 3.0                                | 3.0                            |
| , SCC                          | 140,000                      | 119,000                  | 160,000                                | 225,000                                       | 181,000                            | 218,000                        |
| DIM                            | 179                          | 174                      | 184                                    | 195   | 198                                | 173                            |
| BST, % of Herd                 | 75                           | 70                       | 83                                     | 68  | 63                                 | 75                             |
| % DHI Annual Turnover          | 18                           | 44                       | 34                                     | 38  | 34                                 | 30                             |
| DHI Average Age, mos.          | 41                           | 41                       | 40                                     | 41  | 41                                 | 48                             |
| % Milking Heifers              | 34                           | 38                       | 38                                     | 40  | 34                                 | 28                             |
| Heifer Calving Age, mos.       | 23                           | 23                       | 22                                     | 23  | 25                                 | 22                             |
| Target Days Dry                | 50 - 60                      | 50 - 60                  | 50                                     | 60  | 45                                 | 55                             |
| DHI Days Dry<br>(% > 70 d Dry) | 64<br>(19%)                  | 66<br>(20%)              | 69<br>(21%)                            | 75<br>(26%)                                   | 61<br>(--)                         | 53<br>(9%)                     |
| No. of Dry Cow Groups          | 2                            | 2                        | 2                                      | 2   | 2                                  | 2                              |
| No. of Dry Cow Diets           | 2                            | 1                        | 1                                      | 1   | 2                                  | 2                              |
| Days in Pre-Fresh Target       | 21                           | 21                       | 14                                     | 21  | 21                                 | 14 - 21                        |
| Post-Fresh Group               | Yes                          | Yes                      | Yes                                    | Yes   | Yes                                | Yes                            |
| Days in Post-Fresh Target      | 14                           | 5 - 15                   | 25 - 30                                | 3 - 6   | 0 - 60                             | 14 - 21                        |
| Times Post-Fresh Milked        | 3x                           | 3x                       | 3x                                     | 4x  | 3x                                 | 3x                             |
| Total Mixed Ration             | Yes                          | Yes                      | Yes                                    | Yes   | Yes                                | Yes                            |
| TMR Inventory Program          | No                           | Yes                      | Yes                                    | No  | No                                 | No                             |
| Diet Formulation               | James Bailey<br>ANC          | John Koepke              | Paul Roden<br>Homestead Ag<br>Products | Garrit<br>DeBruin<br>Prescription<br>Premixes | Mark Natzke<br>Ag Consult.<br>Team | Steve<br>Hellenbrand<br>Purina |

**Table 2. General feeding and management information from Hensen Brothers Dairy Inc. when surveyed Jan. 29, 2004.**

| <b>Item</b>                    | <b>Mature Cow Group</b> | <b>Heifer &amp; Fresh Cow Group</b> | <b>Middle Group</b> | <b>Far-Off Dry &amp; Springer Group</b> | <b>Pre-Fresh Group</b> |
|--------------------------------|-------------------------|-------------------------------------|---------------------|---|------------------------|
| No. of Cows                    | 84                      | 91                                  | 108                 | 40                                      | 14                     |
| DHI Milk, lb/cow               | 107                     | 85                                  | 99                  | --                                      | --                     |
| Stall Stocking Density, %      | 106                     | 115                                 | 106                 | 70                                      | 41                     |
| Stall Base                     | Mattress                | Mattress                            | Mattress            | Sand, Tires                             | Mattress               |
| Stall Bedding                  | Sawdust                 | Sawdust                             | Sawdust             | Sand                                    | Sawdust                |
| Stall Width, inches            | 48                      | 48                                  | 48                  | 48                                      | 48                     |
| Bunk Type                      | Enclosed Drive-By       | Enclosed Drive-By                   | Enclosed Drive-By   | Enclosed Drive-By                       | Enclosed Drive-By      |
| Bunk Space, ft./cow            | 2.1                     | 1.8                                 | 1.4                 | 2.3                                     | 6.4                    |
| Times Fed                      | 1X                      | 1X                                  | 1X                  | 1X                                      | 1X                     |
| Times Pushed-Up                | 0                       | 0                                   | 0                   | 0                                       | 0                      |
| Feed Refusal Target, %         | 0                       | 0                                   | 0                   | 0                                       | 0                      |
| Group Free-Stall Configuration | 2-row                   | 2-row                               | 3-row               | 3-row                                   | 2-row                  |
| Self-Locks                     | No                      | No                                  | Yes                 | Yes                                     | No                     |
| Type of Waterers               | Trough                  | Trough                              | Trough              | Trough                                  | Hole                   |
| No. of Waterers in Pen         | 2                       | 2                                   | 2                   | 2                                       | 4 Holes                |
| Farthest In-Pen To Water, ft.  | 88                      | 83                                  | 45                  | 45                                      | 45                     |
| In-Pen Cubic-ft. Water Per Cow | 0.14                    | 0.12                                | 0.08                | 0.16                                    | 0.07-0.14              |
| Summer Ventilation             | Tunnel                  | Tunnel                              | Tunnel              | Tunnel                                  | Tunnel                 |
| Use of TMR Preservative        | Summer                  | Summer                              | Summer              | Summer                                  | Summer                 |
| Hay                            | Yes                     | Yes                                 | Yes                 | Yes                                     | Yes                    |
| Wheat Straw                    | Yes                     | Yes                                 | Yes                 | Yes                                     | Yes                    |
| Hay or Straw Processing        | Screw Mixer             | Screw Mixer                         | Screw Mixer         | Screw Mixer                             | Screw Mixer            |
| Haylage                        | Yes                     | Yes                                 | Yes                 | Yes                                     | Yes                    |
| Corn Silage                    | Yes                     | Yes                                 | Yes                 | Yes                                     | Yes                    |
| Whole Cottonseed               | Yes                     | Yes                                 | Yes                 | No                                      | Yes                    |
| Hi-Moisture Shelled Corn       | Yes                     | Yes                                 | Yes                 | Yes                                     | Yes                    |
| Dry Corn                       | No                      | No                                  | No                  | No                                      | No                     |

**Table 3a. General feeding and management information from Koepke Farms Inc. when surveyed Feb. 2, 2004.**

| <b>Item</b>                    | <b>Fresh Group</b>        | <b>High West Group</b>    | <b>High Group</b>         | <b>Medium Group</b>                 | <b>Low Group</b>                    |
|--------------------------------|---------------------------|---------------------------|---------------------------|-------------------------------------|-------------------------------------|
| No. of Cows                    | 13                        | 60                        | 74                        | 67                                  | 65                                  |
| DHI Milk, lb/cow               | 62                        | 112                       | 103                       | 90                                  | 66                                  |
| DIM                            | 10                        | 54                        | 157                       | 212                                 | 315                                 |
| Stall Stocking Density, %      | 92                        | 100                       | 97                        | 120                                 | 112                                 |
| Stall Base                     | Sand                      | Sand                      | Sand                      | Sand                                | Sand                                |
| Stall Bedding                  | Sand                      | Sand                      | Sand                      | Sand                                | Sand                                |
| Stall Width, inches            | 54                        | 48                        | 48                        | 48                                  | 48                                  |
| Bunk Type                      | Enclosed Drive-By         | Enclosed Drive-By         | Enclosed Drive-By         | Backed, Uncovered, Outside Drive-By | Backed, Uncovered, Outside Drive-By |
| Bunk Space, ft./cow            | 3.0                       | 1.7                       | 1.4                       | 1.8                                 | 1.2                                 |
| Times Fed                      | 1X                        | 1X                        | 1X                        | 1X                                  | 1X                                  |
| Times Pushed-Up                | 0                         | 0                         | 0                         | 0                                   | 0                                   |
| Feed Refusal Target, %         | 0                         | 0                         | 0                         | 0                                   | 0                                   |
| Group Free-Stall Configuration | 3-row                     | 3-row                     | 3-row                     | 2-row                               | 2-row                               |
| Self-Locks                     | No                        | No                        | No                        | No                                  | No                                  |
| Type of Waterers               | Trough-Holes +Summer Tank | Trough-Holes              | Trough-Holes              | Trough-Holes +Summer Tank           | Trough-Holes +Summer Tank           |
| No. of Waterers in Pen         | 1 - 2                     | 2                         | 2                         | 1 - 2                               | 1 - 2                               |
| Farthest In-Pen To Water, ft.  | 60                        | 50                        | 50                        | 50 - 100                            | 50 - 100                            |
| In-Pen Cubic-ft. Water Per Cow | 0.03 – 1.5                | 0.16                      | 0.13                      | 0.10 – 0.23                         | 0.10 - 0.24                         |
| Summer Ventilation             | Oscillating 3' Fan/Mister | Oscillating 3' Fan/Mister | Oscillating 3' Fan/Mister | Tunnel + Mister                     | Tunnel + Mister                     |
| Use of TMR Preservative        | Summer                    | Summer                    | Summer                    | Summer                              | Summer                              |
| Hay                            | No                        | No                        | No                        | No                                  | No                                  |
| Haylage                        | Yes                       | Yes                       | Yes                       | Yes                                 | Yes                                 |
| Corn Silage                    | Yes                       | Yes                       | Yes                       | Yes                                 | Yes                                 |
| Whole Cottonseed               | Yes                       | Yes                       | Yes                       | Yes                                 | No                                  |
| Hi-Moisture Shelled Corn       | No                        | No                        | No                        | No                                  | No                                  |
| Dry Corn                       | Yes                       | Yes                       | Yes                       | Yes                                 | Yes                                 |

**Table 3b. General feeding and management information from Koepke Farms Inc. when surveyed Feb. 2, 2004.**

| <b>Item</b>                    | <b>Far-Off<br/>Dry Group</b> | <b>Pre-Fresh<br/>Group</b> |
|--------------------------------|------------------------------|----------------------------|
| No. of Cows                    | 30                           | 20                         |
| Stall Stocking Density         | 100%                         | 113 sq. ft. per cow        |
| Stall Base                     | Sand                         | Dirt                       |
| Stall Bedding                  | Sand                         | Straw or Sand Pack         |
| Stall Width, inches            | 48                           | 45' x 50'                  |
| Bunk Type                      | Enclosed<br>Drive-By         | Enclosed<br>Drive-By       |
| Bunk Space, ft./cow            | 1.4                          | 2.5                        |
| Times Fed                      | 1X                           | 1X                         |
| Times Pushed-Up                | 0                            | 0                          |
| Feed Refusal Target, %         | 0                            | 0                          |
| Group Free-Stall Configuration | 3-row                        | --                         |
| Self-Locks                     | No                           | No                         |
| Type of Waterers               | Trough-Holes                 | Trough-Holes               |
| No. of Waterers in Pen         | 1                            | 1                          |
| Farthest In-Pen To Water, ft.  | 50                           | 25                         |
| In-Pen Cubic-ft. Water Per Cow | 0.12                         | 0.16                       |
| Summer Ventilation             | Fans                         | Fans                       |
| Use of TMR Preservative        | Summer                       | Summer                     |
| Hay                            | No                           | No                         |
| Corn Stalklage                 | Yes                          | Yes                        |
| Haylage                        | Yes                          | Yes                        |
| Corn Silage                    | Yes                          | Yes                        |
| Whole Cottonseed               | No                           | No                         |
| Soy Hulls                      | Yes                          | Yes                        |
| Hi-Moisture Shelled Corn       | No                           | No                         |
| Dry Corn                       | No                           | No                         |

**Table 4a. General feeding and management information from Rosy-Lane Holstein , LLC when surveyed Feb. 2, 2004.**

| <b>Item</b>                    | <b>High<br/>2-yr Olds</b> | <b>Low<br/>2-yr Olds</b> | <b>High<br/>Large Cows</b> | <b>High<br/>Small Cows</b> | <b>Low<br/>Cows</b> |
|--------------------------------|---------------------------|--------------------------|----------------------------|----------------------------|---------------------|
| No. of Cows                    | 95                        | 87                       | 80                         | 87                         | 95                  |
| DHI Milk, lb/cow               | 84                        | 79                       | 105                        | 106                        | 94                  |
| Stall Stocking Density, %      | 122                       | 112                      | 119                        | 112                        | 123                 |
| Stall Base                     | Sand                      | Sand                     | Sand                       | Sand                       | Sand                |
| Stall Bedding                  | Sand                      | Sand                     | Sand                       | Sand                       | Sand                |
| Stall Width, inches            | 45                        | 45                       | 45                         | 45                         | 45                  |
| Bunk Type                      | Drive-Thru                | Drive-Thru               | Drive-By                   | Drive-Thru                 | Drive-By            |
| Bunk Space, ft./cow            | 1.1                       | 1.2                      | 1.2                        | 1.2                        | 1.3                 |
| Times Fed                      | 1X                        | 1X                       | 1X                         | 1X                         | 1X                  |
| Times Pushed-Up                | 2X                        | 2X                       | 2X                         | 2X                         | 2X                  |
| Feed Refusal Target, %         | 0                         | 0                        | 0                          | 0                          | 0                   |
| Group Free-Stall Configuration | 3-row                     | 3-row                    | 3-row                      | 3-row                      | 3-row               |
| Self-Locks                     | Yes                       | Yes                      | Yes                        | Yes                        | Yes                 |
| Type of Waterers               | Trough                    | Trough                   | Trough                     | Trough                     | Trough              |
| No. of Waterers in Pen         | 2                         | 2                        | 2                          | 2                          | 4                   |
| Farthest In-Pen To Water, ft.  | 53                        | 53                       | 53                         | 53                         | 60                  |
| In-Pen Cubic-ft. Water Per Cow | 0.17                      | 0.18                     | 0.15                       | 0.18                       | 0.25                |
| Summer Ventilation             | Fans                      | Fans                     | Fans                       | Fans                       | Fans                |
| Use of TMR Preservative        | Summer                    | Summer                   | Summer                     | Summer                     | Summer              |
| Hay                            | No                        | No                       | No                         | No                         | No                  |
| Haylage                        | Yes                       | Yes                      | Yes                        | Yes                        | Yes                 |
| Corn Silage                    | Yes                       | Yes                      | Yes                        | Yes                        | Yes                 |
| Whole Cottonseed               | Yes                       | Yes                      | Yes                        | Yes                        | Yes                 |
| Hi-Moisture Shelled Corn       | No                        | No                       | No                         | No                         | No                  |
| Dry Corn                       | Yes                       | Yes                      | Yes                        | Yes                        | Yes                 |

**Table 4b. General feeding and management information from Rosy-Lane Holstein , LLC when surveyed Feb. 2, 2004.**

| <u>Item</u>                    | <u>Fresh Group</u> | <u>Far-Off Dry Group</u> | <u>Pre-Fresh Group</u> |
|--------------------------------|--------------------|--------------------------|------------------------|
| No. of Cows                    | 38                 | 70                       | 15                     |
| Stall Stocking Density, %      | 86                 | 78                       | 100                    |
| Stall Base                     | Sand               | Sand                     | Sand                   |
| Stall Bedding                  | Sand               | Sand                     | Sand                   |
| Stall Width, inches            | 45                 | 48                       | 45                     |
| Bunk Type                      | Drive-Thru         | Drive-By                 | Drive-Thru             |
| Bunk Space, ft./cow            | 2.0                | 2.0                      | 1.5                    |
| Times Fed                      | 1X                 | 1X                       | 1X                     |
| Times Pushed-Up                | 2X                 | 2X                       | 2X                     |
| Feed Refusal Target, %         | 0                  | 0                        | 0                      |
| Group Free-Stall Configuration | 3-row              | 3-row                    | 3-row                  |
| Self-Locks                     | No                 | Yes                      | No                     |
| Type of Waterers               | Trough             | Trough                   | Trough                 |
| No. of Waterers in Pen         | 1                  | 2                        | 1                      |
| Farthest In-Pen To Water, ft.  | 35                 | 72                       | 15                     |
| In-Pen Cubic-ft. Water Per Cow | 0.21               | 0.23                     | 0.40                   |
| Summer Ventilation             | Fans               | Fans                     | Fans                   |
| Use of TMR Preservative        | Summer             | Summer                   | Summer                 |
| Hay                            | Yes                | No                       | No                     |
| Oatlage                        | No                 | Yes                      | Yes                    |
| Haylage                        | Yes                | Yes                      | Yes                    |
| Corn Silage                    | Yes                | Yes                      | Yes                    |
| Whole Cottonseed               | Yes                | No                       | No                     |
| Hi-Moisture Shelled Corn       | No                 | No                       | No                     |
| Dry Corn                       | Yes                | No                       | No                     |

**Table 5a. General feeding and management information from Crave Brothers Farm when surveyed Feb. 3, 2004.**

| <b>Item</b>                    | <b>&gt;150 DIM Group</b> | <b>&lt;150 DIM 2-yr Olds</b> | <b>Fresh Mature Cows</b> | <b>Pregnant, DNB Cows</b> | <b>Low Cows</b>             |
|--------------------------------|--------------------------|------------------------------|--------------------------|---------------------------|-----------------------------|
| No. of Cows                    | 112                      | 96                           | 96                       | 112                       | 145                         |
| DHI Milk, lb/cow               | 98                       | 84                           | 113                      | 90                        | 67                          |
| DIM                            | 191                      | 91                           | 64                       | 233                       | 341                         |
| Stall Stocking Density, %      | 129                      | 110                          | 100                      | 117                       | 106                         |
| Stall Base                     | Dirt, Tires              | Dirt, Tires                  | Dirt, Tires              | Dirt, Tires               | Dirt, Tires                 |
| Stall Bedding                  | Oat Hulls                | Oat Hulls                    | Oat Hulls                | Oat Hulls                 | Oat Hulls                   |
| Stall Width, inches            | 46                       | 46                           | 48                       | 46                        | 47                          |
| Bunk Type                      | Drive-Thru               | Drive-Thru                   | Drive-Thru               | Drive-Thru                | Uncovered, Outside Drive-By |
| Bunk Space, ft./cow            | 1.7                      | 2.0                          | 2.0                      | 1.7                       | 2.0                         |
| Times Fed                      | 1X                       | 1X                           | 1X                       | 1X                        | 1X                          |
| Times Pushed-Up                | 4X                       | 4X                           | 4X                       | 4X                        | 4X                          |
| Feed Refusal Target, %         | 3 - 5                    | 3 - 5                        | 3 - 5                    | 3 - 5                     | Receive Refusals            |
| Group Free-Stall Configuration | 2-row                    | 2-row                        | 2-row                    | 2-row                     | 2-row                       |
| Self-Locks                     | Yes                      | Yes                          | Yes                      | Yes                       | No                          |
| Type of Waterers               | Trough                   | Trough                       | Trough                   | Trough                    | Trough                      |
| No. of Waterers in Pen         | 3                        | 3                            | 3                        | 3                         | 3 - 4                       |
| Farthest In-Pen To Water, ft.  | 60                       | 60                           | 60                       | 60                        | 100                         |
| In-Pen Cubic-ft. Water Per Cow | 0.30                     | 0.35                         | 0.35                     | 0.30                      | 0.05 – 0.20                 |
| Summer Ventilation             | Fans                     | Fans                         | Fans                     | Fans                      | Outside, Free-Stall Shades  |
| Use of TMR Preservative        | Summer                   | Summer                       | Summer                   | Summer                    | Summer                      |
| Hay                            | No                       | No                           | No                       | No                        | No                          |
| Haylage                        | Yes                      | Yes                          | Yes                      | Yes                       | Yes                         |
| Corn Silage                    | Yes                      | Yes                          | Yes                      | Yes                       | Yes                         |
| Whole Cottonseed               | Yes                      | Yes                          | Yes                      | Yes                       | Yes                         |
| Hi-Moisture Shelled Corn       | Yes                      | Yes                          | Yes                      | Yes                       | Yes                         |
| Dry Corn                       | Yes                      | Yes                          | Yes                      | Yes                       | Yes                         |
| Liquid Whey                    | Yes                      | Yes                          | Yes                      | Yes                       | Yes                         |

**Table 5b. General feeding and management information from Crave Brothers Farm when surveyed Feb. 3, 2004.**

| <u>Item</u>                    | <u>Pre-Fresh Group</u>         | <u>Fresh &amp; Hospital Group</u> | <u>Maternity</u>    | <u>Far-Off Dry</u>             |
|--------------------------------|--------------------------------|-----------------------------------|---------------------|--------------------------------|
| No. of Cows                    | 26                             | 12                                | 12                  | 55                             |
| Stall Stocking Density         | 72%                            | 100%                              | 250 sq. ft. per cow | 90 sq. ft. per cow             |
| Stall Base                     | Dirt, Tires                    | Dirt, Tires                       | Dirt                | Dirt                           |
| Stall Bedding                  | Oat Hulls                      | Oat Hulls                         | Straw               | Straw                          |
| Stall Width, inches            | 50                             | 47                                | --                  | --                             |
| Bunk Type                      | Uncovered,<br>Outside Drive-By | Enclosed<br>Drive-By              | H-Bunk<br>Drive-By  | Uncovered,<br>Outside Drive-By |
| Bunk Space, ft./cow            | 2.0                            | 2.0                               | 5.0                 | 1.5                            |
| Times Fed                      | 1X                             | 1X                                | 1X                  | 1X                             |
| Times Pushed-Up                | 4X                             | 0                                 | 0                   | 4X                             |
| Feed Refusal Target, %         | 3 - 5                          | 0                                 | 0                   | 0                              |
| Group Free-Stall Configuration | 2-row                          | 2-row                             | Straw Pack          | Straw Pack                     |
| Self-Locks                     | Yes                            | Yes                               | No                  | No                             |
| Type of Waterers               | Trough-Holes                   | Trough                            | Trough              | Trough-Holes                   |
| No. of Waterers in Pen         | 2 Holes                        | 1                                 | 1                   | 4 Holes                        |
| Farthest In-Pen To Water, ft.  | 50                             | 40                                | 40                  | 50                             |
| In-Pen Cubic-ft. Water Per Cow | 0.53                           | 1.3                               | 1.3                 | 0.05                           |
| Summer Ventilation             | --                             | Fans                              | Fans                | --                             |
| Use of TMR Preservative        | Summer                         | Summer                            | Summer              | Summer                         |
| Hay                            | No                             | Yes                               | No                  | No                             |
| Haylage                        | Yes                            | Yes                               | Yes                 | Yes                            |
| Corn Silage                    | Yes                            | Yes                               | Yes                 | Yes                            |
| Whole Cottonseed               | No                             | Yes                               | No                  | No                             |
| Hi-Moisture Shelled Corn       | No                             | Yes                               | No                  | No                             |
| Dry Corn                       | No                             | Yes                               | No                  | No                             |

**Table 6. General feeding and management information from So-Fine Bovines, LLC when surveyed Feb. 5, 2004.**

| <b>Item</b>                    | <b>High Group</b> | <b>Low Group</b> | <b>Post-Fresh Group</b> | <b>Pre-Fresh Group</b> | <b>Far-Off Dry</b>  |
|--------------------------------|-------------------|------------------|-------------------------|------------------------|---------------------|
| No. of Cows                    | 140               | 163              | 81                      | 27                     | 38                  |
| DHI Milk, lb/cow               | 118               | 76               | 100                     | --                     | --                  |
| DIM                            | 146               | 313              | 55                      | --                     | --                  |
| Stall Stocking Density, %      | 104               | 109              | 109                     | 113                    | 100                 |
| Stall Base                     | Sand              | Sand             | Sand                    | Sand                   | Sand                |
| Stall Bedding                  | Sand              | Sand             | Sand                    | Sand                   | Sand                |
| Stall Width, inches            | 48                | 48               | 48                      | 48                     | 48                  |
| Bunk Type                      | Drive-Thru        | Drive-By         | Drive-Thru              | Drive-Thru             | Outside, Feed Wagon |
| Bunk Space, ft./cow            | 1.4               | 1.5              | 1.6                     | 1.9                    | --                  |
| Times Fed                      | 1X                | 1X               | 1X                      | 1X                     | 1X                  |
| Times Pushed-Up                | 7X                | 7X               | 7X                      | 7X                     | 0                   |
| Feed Refusal Target, %         | 3                 | 3                | 3                       | 3                      | 0                   |
| Group Free-Stall Configuration | 3-row             | 3-row            | 3-row                   | 3-row                  | 3-row               |
| Self-Locks                     | Yes               | No               | Yes                     | Yes                    | No                  |
| Type of Waterers               | Trough            | Trough           | Trough                  | Trough                 | --                  |
| No. of Waterers in Pen         | 3                 | 3                | 2                       | 1                      | --                  |
| Farthest In-Pen To Water, ft.  | 48                | 30               | 63                      | 48                     | --                  |
| In-Pen Cubic-ft. Water Per Cow | 0.13              | 0.13             | 0.06 - 0.13             | 0.19                   | --                  |
| Summer Ventilation             | Fans              | Fans             | Fans                    | Fans                   | --                  |
| Use of TMR Preservative        | No                | No               | No                      | No                     | No                  |
| Hay                            | Yes               | No               | Yes                     | Yes                    | Yes                 |
| Haylage                        | Yes               | Yes              | Yes                     | Yes                    | Yes                 |
| Corn Silage                    | Yes               | Yes              | Yes                     | Yes                    | Yes                 |
| Wheat Straw                    | Yes               | Yes              | Yes                     | Yes                    | No                  |
| Whole Cottonseed               | Yes               | Yes              | Yes                     | No                     | No                  |
| Hi-Moisture Shelled Corn       | Yes               | Yes              | Yes                     | Yes                    | Yes                 |
| Corn Gluten Feed               | Yes               | Yes              | Yes                     | No                     | No                  |
| Beet Pulp                      | Yes               | No               | Yes                     | Yes                    | No                  |

**Table 7a. General feeding and management information from Oechsner Farms when surveyed Feb. 10, 2004.**

| <b>Item</b>                    | <b>High Cows</b> | <b>High 2-yr Olds</b> | <b>Post-Fresh Group</b> | <b>Low Cows</b> | <b>Low 2-yr Olds</b> |
|--------------------------------|------------------|-----------------------|-------------------------|-----------------|----------------------|
| No. of Cows                    | 96               | 92                    | 28                      | 93              | 57                   |
| Stall Stocking Density, %      | 117              | 112                   | 108                     | 113             | 101                  |
| Stall Base                     | Clay             | Clay                  | Clay                    | Clay            | Clay                 |
| Stall Bedding                  | Sand             | Sand                  | Sand                    | Sand            | Sand                 |
| Stall Width, inches            | 46               | 46                    | 46                      | 46              | 46                   |
| Bunk Type                      | Drive-Thru       | Drive-Thru            | Drive-Thru              | Drive-Thru      | Drive-Thru           |
| Bunk Space, ft./cow            | 1.9              | 2.2                   | 2.1                     | 1.9             | 2.1                  |
| Times Fed                      | 1X               | 1X                    | 1X                      | 1X              | 1X                   |
| Times Pushed-Up                | 12X              | 12X                   | 12X                     | 12X             | 12X                  |
| Feed Refusal Target, %         | 3                | 3                     | 3                       | 3               | 3                    |
| Group Free-Stall Configuration | 2-row            | 2-row                 | 2-row                   | 2-row           | 2-row                |
| Self-Locks                     | Yes              | Yes                   | Yes (partial)           | No              | No                   |
| Type of Waterers               | Trough           | Trough                | Trough                  | Trough          | Trough               |
| No. of Waterers in Pen         | 2                | 2                     | 1                       | 2               | 1                    |
| Farthest In-Pen To Water, ft.  | 90               | 100                   | 50                      | 90              | 120                  |
| In-Pen Cubic-ft. Water Per Cow | 0.06             | 0.06                  | 0.13                    | 0.06            | 0.05                 |
| Summer Ventilation             | Fans             | Fans                  | Fans                    | Fans            | Fans                 |
| Use of TMR Preservative        | No               | No                    | No                      | No              | No                   |
| Hay                            | Yes              | Yes                   | Yes                     | Yes             | Yes                  |
| Haylage                        | Yes              | Yes                   | Yes                     | Yes             | Yes                  |
| Corn Silage                    | Yes              | Yes                   | Yes                     | Yes             | Yes                  |
| Whole Cottonseed               | Yes              | Yes                   | Yes                     | Yes             | Yes                  |
| Hi-Moisture Shelled Corn       | Yes              | Yes                   | Yes                     | Yes             | Yes                  |
| Dry Corn                       | No               | No                    | No                      | No              | No                   |

**Table 7b. General feeding and management information from Oechsner Farms when surveyed Feb. 10, 2004.**

| <b>Item</b>                    | <b>Far-Off<br/>Dry Group</b> | <b>Pre-Fresh<br/>Group</b>   | <b>Maternity</b>    |
|--------------------------------|------------------------------|------------------------------|---------------------|
| No. of Cows                    | 40                           | 20                           | 8                   |
| Stall Stocking Density         | 89%                          | 69 sq. ft. per cow           | 110 sq. ft. per cow |
| Stall Base                     | Concrete                     | Dirt                         | Concrete            |
| Stall Bedding                  | Sand                         | Straw Pack                   | Straw Pack          |
| Stall Width, inches            | 45                           | 49' x 28'                    | 12'x14' or 11'x30'  |
| Bunk Type                      | Uncovered,<br>Outside H-Bunk | Uncovered,<br>Outside H-Bunk | Floor Manger        |
| Bunk Space, ft./cow            | 2.3                          | 2.4                          | 5.0                 |
| Times Fed                      | 1X                           | 1X                           | 1X                  |
| Times Pushed-Up                | 0                            | 0                            | 2X                  |
| Feed Refusal Target, %         | 0                            | 0                            | 0                   |
| Group Free-Stall Configuration | 2-row                        | Straw Pack                   | Straw Pack          |
| Self-Locks                     | No                           | No                           | No                  |
| Type of Waterers               | Trough-Holes                 | Trough-Holes                 | Trough-Holes        |
| No. of Waterers in Pen         | 4 Holes                      | 2 Holes                      | 2 Holes             |
| Farthest In-Pen To Water, ft.  | 75                           | 45                           | 15                  |
| In-Pen Cubic-ft. Water Per Cow | 0.03                         | 0.01                         | 0.12                |
| Summer Ventilation             | Tunnel                       | --                           | Tunnel              |
| Use of TMR Preservative        | No                           | No                           | No                  |
| Hay                            | No                           | Yes                          | Yes                 |
| Straw                          | Yes                          | Yes                          | Yes                 |
| Haylage                        | No                           | Yes                          | Yes                 |
| Corn Silage                    | Yes                          | Yes                          | Yes                 |
| Oatlage                        | Yes                          | Yes                          | Yes                 |
| Beet Pulp                      | No                           | Yes                          | Yes                 |
| Hi-Moisture Shelled Corn       | No                           | Yes                          | Yes                 |
| Dry Corn                       | No                           | No                           | No                  |

**Table 8. Alfalfa silage data for six selected high-producing WI dairy herds surveyed during Jan.-Feb., 2004.**

| <b>Item</b>               | <b>Hensen</b> | <b>Koepke</b>    | <b>Koepke</b>    | <b>Rosy Lane</b> | <b>Crave</b> | <b>So-Fine</b> | <b>So-Fine</b> | <b>Oechsner</b> | <b>Oechsner</b> |
|---------------------------|---------------|------------------|------------------|------------------|--------------|----------------|----------------|-----------------|-----------------|
|                           |               | <i>f24</i>       | <i>b24</i>       |                  |              | <i>B2</i>      | <i>B4</i>      | <i>1st</i>      | <i>2nd</i>      |
| Cutting schedule          | 4x            | 4x               | 4x               | 3x, 4x           | 4x           | 4x             | 4x             | 4x              | 4x              |
| Storage                   | Bunkers       | Uprights<br>Bags | Uprights<br>Bags | Bags             | Bags         | Bunkers        | Bunkers        | Bags            | Bags            |
| Additive                  | LAB           | LAB              | LAB              | LAB              | LAB          | LAB            | LAB            | LAB             | LAB             |
| DM, %                     | 49            | 52               | 31               | 32               | 40           | 28             | 44             | 39              | 39              |
| % Coarse Screens          | 14            | 5                | 5                | 25               | 14           | 34             | 14             | 32              | 32              |
| % Medium Screens          | 65            | 60               | 70               | 55               | 66           | 56             | 71             | 55              | 53              |
| %Fine Screen & Pan        | 21            | 35               | 25               | 20               | 20           | 10             | 15             | 13              | 15              |
| MPL, inches               | 0.32          | 0.22             | 0.29             | 0.39             | 0.33         | 0.53           | 0.38           | 0.47            | 0.46            |
| pH                        | 4.4           | 4.4              | 4.9              | 4.5              | 4.5          | 5.3            | 4.3            | 4.3             | 4.2             |
| % Lactate (DMB)           | 2.9           | 2.7              | 3.1              | 5.2              | 5.0          | 0.6            | 4.2            | 4.3             | 5.2             |
| % Acetate (DMB)           | 2.6           | 2.6              | 4.4              | 2.7              | 1.3          | 5.5            | 0.4            | 1.5             | 0.8             |
| % Butyrate (DMB)          | --            | --               | --               | --               | --           | 1.0            | --             | --              | --              |
| Lactate (% total)         | 52            | 51               | 39               | 66               | 79           | 8              | 91             | 74              | 87              |
| % Ethanol (DMB)           | 1.2           | --               | 2.0              | --               | --           | --             | --             | --              | --              |
| Ammonia (% of CP)         | 1.8           | 12.6             | 21.6             | 19.3             | 12.3         | 44.0           | 14.5           | 17.0            | 13.6            |
| % CP (DMB)                | 23.2          | 18.6             | 21.9             | 20.1             | 23.8         | 25.5           | 20.7           | 18.6            | 20.2            |
| RUP (% of CP)             | 20            | 20               | 20               | 20               | 16           | 18             | 17             | 21              | 20              |
| % NDF (DMB)               | 36.1          | 35.3             | 39.2             | 41.7             | 36.4         | 36.9           | 35.4           | 40.8            | 40.8            |
| NDFD (% of NDF)           | 45            | 40               | 50               | 46               | 58           | 39             | 42             | 42              | 43              |
| % NFC (DMB)               | 26.7          | 35.3             | 26.3             | 24.8             | 25.7         | 23.8           | 31.0           | 28.4            | 27.6            |
| % Ash (DMB)               | 14.3          | 10.3             | 11.1             | 12.1             | 13.4         | 13.3           | 11.0           | 11.2            | 10.7            |
| % TDN <sub>1x</sub> (DMB) | 60.3          | 62.9             | 62.8             | 59.1             | 64.7         | 58.2           | 61.8           | 59.3            | 60.2            |

**Table 9. Corn silage data for six selected high-producing WI dairy herds surveyed during Jan.-Feb., 2004.**

| <u>Item</u>  | <u>Hensen</u>        | <u>Koepke</u>  | <u>Rosy Lane</u> | <u>Crave</u>    | <u>So-Fine</u> | <u>Oechsner</u> |
|--|----------------------|----------------|------------------|-----------------|----------------|-----------------|
| Hybrid   | Dual Purpose & Leafy | Dual Purpose   | Dual Purpose     | Bm <sub>3</sub> | Dual Purpose   | Dual Purpose    |
| Storage  | Bunkers              | Bags & Upright | Piles            | Bunkers         | Bunkers        | Bunkers Bags    |
| Kernel Processed                                       | Yes                  | Yes            | Yes              | Yes             | Yes            | Yes             |
| Additive   | LAB                  | LAB            | LAB              | LAB             | No             | Urea-Molasses   |
| DM, %  | 29                   | 36             | 30               | 36              | 36             | 31              |
| % Coarse Screens                                       | 16                   | 19             | 15               | 21              | 8              | 32              |
| % Medium Screens                                       | 70                   | 63             | 72               | 68              | 74             | 59              |
| % Fine Screen & Pan                                    | 14                   | 18             | 13               | 11              | 18             | 9               |
| MPL, inches  | 0.42                 | 0.38           | 0.41             | 0.45            | 0.34           | 0.51            |
| pH   | 3.7                  | 3.8            | 3.8              | 3.7             | 3.7            | 3.9             |
| % Lactate (DMB)  | 3.6                  | 6.8            | 6.2              | 4.5             | 4.1            | 3.3             |
| % Acetate (DMB)  | 0.38                 | 1.0            | 3.3              | 2.6             | 2.4            | 3.1             |
| Lactate (% total acids)                                | 91                   | 88             | 65               | 64              | 57             | 52              |
| % Ethanol (DMB)  | 1.1                  | --             | --               | 0.6             | 0.8            | 1.3             |
| Ammonia (% of CP)                                      | 3.3                  | 12.0           | 13.0             | 14.0            | 18.7           | 36.1            |
| % Starch (DMB)   | 22.6, 27.3           | 31.1, 31.4     | 23.9, 26.5       | 25.6, 29.4      | 31.4, 32.8     | 30.1, 24.0      |
| Kernel Processing Score<br>% starch thru 4.75 mm sieve | 68                   | 77             | 63               | 47              | 56             | 41              |
| % CP (DMB)   | 8.7                  | 8.0            | 7.9              | 8.1             | 8.4            | 10.8            |
| % NDF (DMB)  | 49.0                 | 42.8           | 45.5             | 45.6            | 39.3           | 40.8            |
| NDFD (% of NDF)  | 61                   | 62             | 62               | 67              | 63             | 61              |
| % NFC (DMB)  | 30.9                 | 42.8           | 37.8             | 37.7            | 43.9           | 41.4            |
| % Ash (DMB)  | 9.5                  | 4.8            | 7.0              | 6.7             | 6.5            | 5.2             |
| % TDN <sub>1x</sub> (DMB)                              | 65.8                 | 73.4           | 70.2             | 72.5            | 73.0           | 73.2            |

**Table 10. Corn grain data for six selected high-producing WI dairy herds surveyed during Jan.-Feb., 2004.**

| <u>Item</u>                        | <u>Hensen</u>       | <u>Koepke</u>           | <u>Rosy Lane</u> | <u>Crave</u>           | <u>So-Fine</u>      | <u>Oechsner</u>       |
|------------------------------------|---------------------|-------------------------|------------------|------------------------|---------------------|-----------------------|
| Corn Type                          | Hi-Moisture Shelled | Dry Shelled             | Dry Shelled      | Hi-Moisture Shelled    | Hi-Moisture Shelled | Hi-Moisture Shelled   |
| Storage                            | Upright Silos       | Farm Bins               | Mill Bought      | Upright Silos          | Bags                | Bags                  |
| Processing                         | Roller Mill         | Hammermill 3/16" screen | Hammermill       | Roller In & Hammer Out | Hammer Mill         | Roller Mill on Bagger |
| Additive                           | LAB                 | --                      | --               | LAB                    | --                  | LAB                   |
| DM, %                              | 74                  | 84                      | 85               | 74                     | 76                  | 74                    |
| MPS, microns                       | 2071                | 794                     | 573              | 929                    | 1459                | 1897                  |
| % passing #16 or 1180 micron sieve | 12                  | 57                      | 90               | 51                     | 28                  | 17                    |
| pH                                 | 4.0                 | --                      | --               | --                     | 4.1                 | 3.9                   |
| % Lactate (DMB)                    | 2.1                 | --                      | --               | --                     | 0.7                 | 1.0                   |
| % Acetate (DMB)                    | 0.6                 | --                      | --               | --                     | --                  | 0.1                   |
| Lactate (% total acids)            | 77                  | --                      | --               | --                     | 100                 | 90                    |
| % Ethanol (DMB)                    | --                  | --                      | --               | --                     | --                  | 0.4                   |
| Ammonia (% of CP)                  | 4.3                 | --                      | --               | --                     | 17.4                | 17.9                  |

**Table 11. High-Group TMR sample analysis for six selected high-producing WI dairy herds surveyed Jan.-Feb., 2004.**

| <u>Item</u>               | <u>Hensen</u> | <u>Koepke</u> | <u>Rosy Lane</u> | <u>Crave</u> | <u>So-Fine</u> | <u>Oechsner</u> |
|---------------------------|---------------|---------------|------------------|--------------|----------------|-----------------|
| DM, %                     | 53            | 57            | 46               | 40           | 49             | 48              |
| % CP (DMB)                | 18.0          | 16.7          | 17.1             | 17.4         | 18.4           | 18.4            |
| % NDF (DMB)               | 30.1          | 30.1          | 29.2             | 31.0         | 27.3           | 29.5            |
| NDFD (% of NDF)           | 53            | 62            | 65               | 67           | 61             | 51              |
| % NFC (DMB)               | 40.2          | 42.0          | 42.8             | 38.2         | 41.4           | 40.1            |
| % Fat (DMB)               | 5.2           | 6.0           | 5.9              | 5.1          | 5.0            | 5.6             |
| % TDN <sub>1x</sub> (DMB) | 71            | 74            | 75.8             | 71.3         | 72.6           | 71.5            |
| % Ca (DMB)                | 1.07          | 0.93          | 0.93             | 1.07         | 0.71           | 0.96            |
| % P (DMB)                 | 0.43          | 0.38          | 0.37             | 0.38         | 0.35           | 0.44            |
| % Mg (DMB)                | 0.29          | 0.34          | 0.38             | 0.37         | 0.33           | 0.38            |
| % K (DMB)                 | 1.49          | 1.63          | 1.44             | 1.61         | 1.35           | 1.52            |
| % Coarse Screen           | 10            | 10            | 15               | 8            | 7              | 12              |
| % Medium Screen           | 39            | 32            | 35               | 54           | 39             | 39              |
| % Pan                     | 51            | 58            | 50               | 38           | 54             | 49              |

**Table 12a. Ingredient composition of formulations for Hensen Brothers Dairy Inc. when surveyed Jan. 29, 2004.**

| <b>Item</b>                            | <b>Mature<br/>Cow Group</b> | <b>Heifer &amp; Fresh<br/>Cow Group</b> | <b>Middle Group</b> | <b>Far-Off Dry &amp;<br/>Springer Group</b> | <b>Pre-Fresh<br/>Group</b> |
|--|-----------------------------|---|---------------------|---|----------------------------|
| <u>Ingredients, % of DM</u>            |                             |   |                     |   |                            |
| Wheat Straw                            | 1.5                         | 1.0                                     | 1.7                 | 5.0   | 3.5                        |
| Baled Hay                              | 7.2                         | 5.8                                     | 7.8                 | 9.3   | 3.3                        |
| Haylage                                | 9.9                         | 9.1                                     | 10.5                | 53.3  | 21.1                       |
| Corn Silage                            | 23.4                        | 25.9                                    | 22.2                | 31.1  | 35.8                       |
| Hi-Moisture Shelled Corn               | 29.6                        | 27.0                                    | 28.9                | --  | 10.0                       |
| Corn Starch                            | 0.8                         | 0.9                                     | 0.8                 | --  | --                         |
| Corn Gluten Feed                       | 2.3                         | 2.6                                     | 2.5                 | --  | --                         |
| Whole Cottonseed                       | 9.2                         | 9.3                                     | 8.4                 | --  | 3.5                        |
| Soy Hulls                              | --                          | --                                      | --                  | --  | 5.1                        |
| Liquid Feed Supplement                 | 1.7                         | 2.3                                     | 1.8                 | --  | 2.9                        |
| Soybean Meal 48                        | 6.5                         | 7.3                                     | 7.0                 | --  | --                         |
| Distillers Dried Grains                | 3.1                         | 3.5                                     | 3.3                 | --  | --                         |
| Soy Plus®                              | --                          | --                                      | --                  | --  | 4.1                        |
| Blood Meal                             | 1.2                         | 1.3                                     | 1.3                 | --  | --                         |
| Urea                                   | 0.2                         | 0.3                                     | 0.3                 | --  | --                         |
| Tallow                                 | 0.2                         | 0.3                                     | 0.3                 | --  | --                         |
| Megalac-R®                             | 0.4                         | 0.4                                     | 0.4                 | --  | 0.9                        |
| Minerals/Vitamins/Additives            | 2.8                         | 3.0                                     | 2.8                 | 1.3   | 9.8                        |
| <u>List of Feed Additives</u>          |                             |   |                     |   |                            |
| Sodium Bicarbonate                     | Y                           | Y                                       | Y                   | --  | --                         |
| Omnigen-AF®                            | Y                           | Y                                       | Y                   | --  | Y                          |
| Sel Plex®                              | Y                           | Y                                       | Y                   | --  | --                         |
| Soy Chlor®                             | --                          | --                                      | --                  | --  | Y                          |
| Bio-Chlor®                             | --                          | --                                      | --                  | --  | Y                          |
| Nutro-Cal®                             | --                          | --                                      | --                  | --  | Y                          |
| Biotin                                 | Y                           | Y                                       | Y                   | --  | Y                          |
| Micro N-R-G®<br>Bacteria/Yeast/Enzymes | Y                           | Y                                       | Y                   | --  | Y                          |

**Table 12b. Nutrient composition of formulations, intake, feed efficiency, and feed cost for Hensen Brothers Dairy Inc. when surveyed Jan. 29, 2004.**

| <u>Item</u>                            | <u>Mature Cow Group</u> | <u>Heifer &amp; Fresh Cow Group</u> | <u>Middle Group</u> | <u>Far-Off Dry &amp; Springer Group</u> | <u>Pre-Fresh Group</u> |
|--|-------------------------|-------------------------------------|---------------------|---|------------------------|
| <u>Nutrients</u>                       |                         |                                     |                     |   |                        |
| % DM                                   | 52                      | 51                                  | 53                  | 43                                      | 43                     |
| % CP (DMB)                             | 17.0                    | 17.3                                | 17.4                | 13.5                                    | 15.5                   |
| RUP (% of CP)                          | 38                      | 37                                  | 38                  | 28                                      | 39                     |
| % NDF (DMB)                            | 29.2                    | 29.7                                | 29.0                | 48.4                                    | 37.0                   |
| % NDF from forage (DMB)                | 19.1                    | 19.1                                | 19.1                | 43.2                                    | 30.4                   |
| % Forage (DMB)                         | 45                      | 45                                  | 45                  | 96                                      | 66                     |
| % NFC (DMB)                            | 38.1                    | 37.4                                | 37.8                | 25.3                                    | 32.0                   |
| % Fat (DMB)                            | 5.7                     | 5.6                                 | 5.8                 | 2.8                                     | 3.5                    |
| % TDN <sub>1x</sub> (DMB)              | 76.8                    | 76.6                                | 76.6                | 62.1                                    | 70.1                   |
| % Ca (DMB)                             | 1.0                     | 1.07                                | 1.06                | 0.91                                    | 1.25                   |
| % P (DMB)                              | 0.40                    | 0.41                                | 0.41                | 0.35                                    | 0.40                   |
| % Mg (DMB)                             | 0.36                    | 0.38                                | 0.36                | 0.40                                    | 0.44                   |
| % K (DMB)                              | 1.16                    | 1.17                                | 1.19                | 1.83                                    | 1.45                   |
| % Salt (DMB; added)                    | 0.22                    | 0.22                                | 0.23                | 0.21                                    | 0.12                   |
| Supp. Vitamin A, IU/lb DM              | 3333                    | 3745                                | 3588                | 3572                                    | 4528                   |
| Supp. Vitamin D, IU/lb DM              | 833                     | 936                                 | 897                 | 1179                                    | 1509                   |
| Supp. Vitamin E, IU/lb DM              | 33                      | 38                                  | 36                  | 36                                      | 113                    |
|  |                         |                                     |                     |   |                        |
| Avg. DM Intake, lb/cow/d               | 60                      | 44.5                                | 55                  | 28                                      | 26.5                   |
| DHI Milk lb./DMI lb.                   | 1.78                    | 1.91                                | 1.80                | --                                      | --                     |
| Tank Milk lb./DMI lb.<br>1.70          | --                      | --                                  | --                  | --                                      | --                     |
| Feed Cost, \$/cow/d                    | 4.49                    | 3.46                                | 4.21                | 1.13                                    | 2.91                   |
| Feed Cost, \$/cwt. DHI Milk            | 4.20                    | 4.07                                | 4.25                | --                                      | --                     |
| Feed Cost, \$/cwt. Tank Milk<br>\$4.50 | --                      | --                                  | --                  | --                                      | --                     |

**Table 13a. Ingredient composition of formulations for Koepke Farms Inc. when surveyed Feb. 2, 2004.**

| <b>Item</b>                   | <b>High West &amp;<br/>Fresh Groups</b> | <b>High Group</b> | <b>Medium<br/>Group</b> | <b>Low<br/>Group</b> | <b>Dry Groups</b> |
|-------------------------------|---|-------------------|-------------------------|----------------------|-------------------|
| <u>Ingredients, % of DM</u>   |   |                   |                         |                      |                   |
| Corn Stalklage                | --                                      | --                | --                      | --                   | 32.4              |
| Haylage                       | 20.4                                    | 23.6              | 23.5                    | 29.5                 | 26.7              |
| Corn Silage                   | 24.5                                    | 24.3              | 24.1                    | 26.1                 | 5.6               |
| Dry Shelled Corn              | 24.4                                    | 26.2              | 26.0                    | 20.5                 | --                |
| Corn Gluten Feed              | 3.4                                     | 1.2               | 3.6                     | 12.9                 | --                |
| Soy Hulls                     | --                                      | --                | --                      | --                   | 30.2              |
| Whole Cottonseed              | 7.3                                     | 7.8               | 7.8                     | --                   | --                |
| Roasted Soybeans              | 11.4                                    | 9.3               | 7.7                     | 2.9                  | --                |
| Linseed Meal                  | 2.9                                     | 3.5               | 2.8                     | 5.4                  | --                |
| Blood Meal                    | 1.2                                     | 0.3               | 0.2                     | --                   | --                |
| Feather Meal                  | 0.4                                     | 0.3               | 0.8                     | 0.6                  | --                |
| Urea                          | --                                      | 0.1               | 0.1                     | 0.1                  | 0.2               |
| Minerals/Vitamins/Additives   | 4.1                                     | 3.4               | 3.4                     | 2.0                  | 4.9               |
| <u>List of Feed Additives</u> |   |                   |                         |                      |                   |
| Sodium Bicarbonate            | Y                                       | Y                 | Y                       | Y                    | --                |
| Potassium Carbonate           | Y                                       | Y                 | Y                       | Y                    | --                |
| Omnigen-AF®                   | Y                                       | Y                 | Y                       | Y                    | Y                 |
| Biotin                        | Y                                       | Y                 | Y                       | Y                    | Y                 |
| 4-Plex®                       | Y                                       | Y                 | --                      | --                   | Y                 |
| Niacin                        | Y                                       | --                | --                      | --                   | Y                 |
| Priority One® (DFM)           | Y                                       | Y                 | --                      | --                   | Y                 |

**Table 13b. Nutrient composition of formulations , intake, feed efficiency, and feed cost for Koepke Farms Inc. when surveyed Feb. 2, 2004.**

| <b>Item</b>                            | <b>High West &amp; Fresh Groups</b> | <b>High Group</b> | <b>Medium Group</b> | <b>Low Group</b> | <b>Dry Groups</b> |
|--|-------------------------------------|-------------------|---------------------|------------------|-------------------|
| <u>Nutrients</u>                       |                                     |                   |                     |                  |                   |
| % DM                                   | 56                                  | 57                | 56                  | 52               | 65                |
| % CP (DMB)                             | 17.2                                | 17.0              | 16.8                | 16.5             | 13.1              |
| RUP (% of CP)                          | 36                                  | 37                | 36                  | 36               | 36                |
| % NDF (DMB)                            | 29.4                                | 30.0              | 29.7                | 32.3             | 54.8              |
| % NDF from forage (DMB)                | 19.1                                | 20.3              | 19.9                | 23.4             | 36.4              |
| % Forage (DMB)                         | 45                                  | 48                | 48                  | 56               | 65                |
| % NFC (DMB)                            | 41.0                                | 42.3              | 41.7                | 41.7             | 23.9              |
| % Starch (DMB)                         | 29.1                                | 29.3              | 30.1                | 29.5             | 13.5              |
| % Fat (DMB)                            | 6.1                                 | 5.8               | 5.5                 | 3.4              | 2.7               |
| % TDN <sub>1x</sub> (DMB)              | 77                                  | 75                | 75                  | 72               | 60                |
| % Ca (DMB)                             | 1.01                                | 0.96              | 0.96                | 0.91             | 1.01              |
| % P (DMB)                              | 0.41                                | 0.40              | 0.40                | 0.40             | 0.37              |
| % Mg (DMB)                             | 0.33                                | 0.35              | 0.33                | 0.31             | 0.40              |
| % K (DMB)                              | 1.65                                | 1.60              | 1.59                | 1.48             | 1.39              |
| % Salt (DMB; added)                    | 0.50                                | 0.50              | 0.50                | 0.60             | 0.28              |
| Supp. Vitamin A, IU/lb DM              | 2211                                | 2484              | 2484                | 2852             | 6160              |
| Supp. Vitamin D, IU/lb DM              | 556                                 | 625               | 625                 | 718              | 1551              |
| Supp. Vitamin E, IU/lb DM              | 9                                   | 10                | 10                  | 12               | 60                |
|  |                                     |                   |                     |                  |                   |
| Avg. DM Intake, lb/cow/d               | 52 - 57                             | 62                | 62                  | 54               | 25                |
| DHI Milk lb./DMI lb.                   | 1.20 – 1.97                         | 1.66              | 1.45                | 1.22             | --                |
| Tank Milk lb./DMI lb<br>1.57           | --                                  | --                | --                  | --               | --                |
| Feed Cost, \$/cow/d                    | 3.62 – 4.05                         | 4.23              | 3.79                | 2.63             | 1.22              |
| Feed Cost, \$/cwt. DHI Milk            | 3.62 – 5.83                         | 4.11              | 4.21                | 3.99             | --                |
| Feed Cost, \$/cwt. Tank Milk<br>\$4.01 | --                                  | --                | --                  | --               | --                |

**Table 14. Ingredient composition of formulations for Rosy Lane Holsteins LLC when surveyed Feb. 2 , 2004.**

| <u>Item</u>                   | <u>Milk Groups</u> | <u>Dry Groups</u> |
|-------------------------------|--------------------|-------------------|
| <u>Ingredients, % of DM</u>   |                    |                   |
| Oatlage                       | --                 | 38                |
| Haylage                       | 24                 | 29                |
| Corn Silage                   | 22                 | 31                |
| Dry Shelled Corn              | 26.1               | --                |
| Whole Cottonseed              | 9.5                | --                |
| Roasted Soybeans              | 2.3                | --                |
| Liquid Feed Supplement        | 2.9                | --                |
| Soybean Meal 48               | 7.0                | --                |
| Distillers Dried Grains       | 0.7                | --                |
| Corn Gluten Meal 60           | 0.7                | --                |
| Blood Meal                    | 1.1                | --                |
| Tallow                        | 0.4                | --                |
| Energy Booster®               | 1.0                | --                |
| Minerals/Vitamins/Additives   | 2.3                | 2.0               |
| <u>List of Feed Additives</u> |                    |                   |
| Probios TC® (DFM)             | Y                  | Y                 |
| Magnesium Sulfate             | --                 | Y                 |
| Yeast                         | Y                  | --                |
| Omnigen-AF®                   | Y                  | Y                 |
| Biotin                        | Y                  | Y                 |
| 4-Plex®                       | Y                  | Y                 |

**Table 15. Ingredient composition of formulations for Crave Brothers Farm when surveyed Feb. 3, 2004.**

| <u>Item</u>                   | <u>Milk Groups</u>   | <u>Dry Groups</u> |
|-------------------------------|----------------------|-------------------|
| <u>Ingredients, % of DM</u>   |                      |                   |
| Haylage                       | 16                   | 57                |
| Corn Silage                   | 34                   | 36                |
| Oat Hulls                     | --                   | 6.1               |
| Dry Shelled Corn              | 7.7                  | --                |
| High-Moisture Shelled Corn    | 9.8                  | --                |
| Liquid Whey                   | 4.9                  | --                |
| Whole Cottonseed              | 2.6                  | --                |
| Soy Hulls                     | 7.2                  | --                |
| Roasted Soybeans              | 5.2                  | --                |
| Soybean Meal 48               | 7.2                  | --                |
| Corn Gluten Meal 60           | 0.5                  | --                |
| Blood Meal                    | 0.7                  | --                |
| Megalac®                      | 0.5                  | --                |
| Minerals/Vitamins/Additives   | 3.7                  | 0.9               |
| <u>List of Feed Additives</u> |                      |                   |
| Probios TC® (DFM)             | Y                    | Y                 |
| Yeast                         | Y                    | N                 |
| Mepron®                       | Y (except Low Group) | N                 |
| Biotin                        | Y                    | N                 |
| 4-Plex®                       | Y                    | N                 |

**Table 16. Nutrient composition of formulations , intake, feed efficiency, and feed cost for Rosy Lane Holsteins LLC and Crave Brothers Farm when surveyed Feb. 2 and 3, 2004.**

| <u>Item</u>                  | <u>Rosy Lane Milk Groups</u> | <u>Rosy Lane Dry Groups</u> |  | <u>Crave Bros. Milk Groups</u> | <u>Crave Bros. Dry Groups</u> |
|------------------------------|------------------------------|-----------------------------|--|--------------------------------|-------------------------------|
| <u>Nutrients</u>             |                              |                             |  |                                |                               |
| % DM                         | 51                           | 41                          |  | 43                             | 49                            |
| % CP (DMB)                   | 17.5                         | 13.5                        |  | 17.4                           | 15.3                          |
| RUP (% of CP)                | 38                           | 28                          |  | 37                             | 26                            |
| % NDF (DMB)                  | 26.2                         | 43.0                        |  | 32.3                           | 43.1                          |
| % NDF from forage (DMB)      | 20.4                         | 43.0                        |  | 22.5                           | 39.2                          |
| % Forage (DMB)               | 46                           | 98                          |  | 50                             | 93                            |
| % NFC (DMB)                  | 43.5                         | 32.4                        |  | 40.1                           | 32.6                          |
| % Fat (DMB)                  | 5.9                          | 2.1                         |  | 4.6                            | 3.3                           |
| % TDN <sub>1x</sub> (DMB)    | 76.7                         | 67.0                        |  | 74.5                           | 64.5                          |
| % Ca (DMB)                   | 0.94                         | 0.80                        |  | 0.90                           | 0.77                          |
| % P (DMB)                    | 0.37                         | 0.32                        |  | 0.38                           | 0.40                          |
| % Mg (DMB)                   | 0.34                         | 0.43                        |  | 0.39                           | 0.23                          |
| % K (DMB)                    | 1.18                         | 1.89                        |  | 1.21                           | 1.72                          |
| % Salt (DMB; added)          | 0.47                         | 0.30                        |  | 0.49                           | 0.20                          |
| Supp. Vitamin A, IU/lb DM    | 3259                         | 3517                        |  | 2227                           | 3333                          |
| Supp. Vitamin D, IU/lb DM    | 1086                         | 1172                        |  | 557                            | 833                           |
| Supp. Vitamin E, IU/lb DM    | 10                           | 69                          |  | 14                             | 33                            |
|                              |                              |                             |  |                                |                               |
| Avg. DM Intake, lb/cow/d     | 55                           | 30                          |  | 56 (51 – 62)                   | 30                            |
| DHI Milk lb./DMI lb.         | 1.70                         | --                          |  | 1.64 – 1.82                    | --                            |
| Tank Milk lb./DMI lb.        | 1.64                         |                             |  | 1.61                           |                               |
| Feed Cost, \$/cow/d          | 3.97                         | 1.34                        |  | 3.59 – 4.34                    | 1.17                          |
| Feed Cost, \$/cwt. DHI Milk  | 4.27                         | --                          |  | 3.85 – 4.28                    | --                            |
| Feed Cost, \$/cwt. Tank Milk | 4.41                         | --                          |  | 4.36                           | --                            |

**Table 17a. Ingredient composition of formulations for So-Fine Bovines LLC when surveyed Feb. 5, 2004.**

| <b>Item</b>                   | <b>High Group</b> | <b>Low Group</b> | <b>Post-Fresh Group</b> | <b>Pre-Fresh Group</b> | <b>Far-Off Dry</b> |
|-------------------------------|-------------------|------------------|-------------------------|------------------------|--------------------|
| <u>Ingredients, % of DM</u>   |                   |                  |                         |                        |                    |
| Wheat Straw                   | 0.6               | 0.7              | 0.9                     | 7                      | --                 |
| Hay                           | 2.6               | --               | 2.9                     | 10                     | 11                 |
| Haylage                       | 19.5              | 23.1             | 10.1                    | 20                     | 28                 |
| Corn Silage                   | 23.3              | 33.5             | 24.9                    | 35                     | 54                 |
| High Moisture Shelled Corn    | 21.6              | 18.6             | 20.3                    | 10                     | 2.4                |
| Corn Gluten Feed              | 5.5               | 3.3              | 5.1                     | --                     | --                 |
| Beet Pulp                     | 6.2               | --               | 8.6                     | 10                     | --                 |
| Whole Cottonseed              | 6.7               | 8.0              | 9.8                     | --                     | --                 |
| Soybean Meal 48               | 6.0               | 5.4              | 7.4                     | --                     | --                 |
| Soy Plus®                     | 3.9               | 3.6              | 4.7                     | --                     | --                 |
| Fish Meal                     | 0.7               | 0.6              | 0.8                     | --                     | --                 |
| Urea                          | 0.1               | 0.09             | 0.1                     | --                     | --                 |
| Transition Custom             | --                | --               | --                      | 6.0                    | --                 |
| Dry Cow Mix                   | --                | --               | --                      | --                     | 4.6                |
| Tallow                        | 0.6               | 0.6              | 0.7                     | --                     | --                 |
| Minerals/Vitamins/Additives   | 2.7               | 2.5              | 3.7                     | 2.0                    | --                 |
| <u>List of Feed Additives</u> |                   |                  |                         |                        |                    |
| Sodium Bicarbonate            | Y                 | Y                | Y                       | --                     | --                 |
| Zinpro-40®                    | Y                 | Y                | Y                       | Y                      | --                 |
| Yeast                         | Y                 | Y                | Y                       | Y                      | --                 |
| Probios TC® (DFM)             | Y                 | --               | Y                       | Y                      | --                 |
| Biochlor                      | --                | --               | --                      | Y                      | --                 |
| Anionic Salts                 | --                | --               | --                      | Y                      | --                 |

**Table 17b. Nutrient composition of formulations , intake, feed efficiency, and feed cost for So-Fine Bovines LLC when surveyed Feb. 5, 2004.**

| <u>Item</u>                            | <u>High Group</u> | <u>Low Group</u> | <u>Post-Fresh Group</u> | <u>Pre-Fresh Group</u> | <u>Far-Off Dry</u> |
|--|-------------------|------------------|-------------------------|------------------------|--------------------|
| <u>Nutrients</u>                       |                   |                  |                         |                        |                    |
| % DM                                   | 50                | 47               | 51                      | 51                     | 41                 |
| % CP (DMB)                             | 17.9              | 17.9             | 17.9                    | 13.8                   | 14.8               |
| RUP (% of CP)                          | 36                | 35               | 37                      | 27                     | 29                 |
| % NDF (DMB)                            | 30.9              | 31.3             | 31.1                    | 39.3                   | 42.9               |
| % NDF from forage (DMB)                | 18.0              | 23.0             | 18.0                    | 32.4                   | 41.0               |
| % Forage (DMB)                         | 46                | 49               | 40                      | 72                     | 93                 |
| % NFC (DMB)                            | 38.9              | 38.3             | 38.1                    | 36.2                   | 32.6               |
| % Starch (DMB)                         | 25.1              | 25.2             | 24.9                    | 20.3                   | 14.8               |
| % Fat (DMB)                            | 4.8               | 5.1              | 5.4                     | 2.8                    | 3.1                |
| % TDN <sub>1x</sub> (DMB)              | 75.6              | 75.0             | 76.2                    | 66.8                   | 67.0               |
| % Ca (DMB)                             | 0.84              | 0.81             | 0.95                    | 1.3                    | 0.81               |
| % P (DMB)                              | 0.40              | 0.41             | 0.44                    | 0.4                    | 0.33               |
| % Mg (DMB)                             | 0.36              | 0.36             | 0.39                    | 0.39                   | 0.36               |
| % K (DMB)                              | 1.28              | 1.32             | 1.13                    | 1.25                   | 1.62               |
| % Salt (DMB; added)                    | 0.27              | 0.26             | 0.47                    | 0.24                   | 0.12               |
| Supp. Vitamin A, IU/lb DM              | 3102              | 2917             | 3752                    | 7748                   | 5623               |
| Supp. Vitamin D, IU/lb DM              | 1034              | 972              | 1251                    | 2137                   | 1869               |
| Supp. Vitamin E, IU/lb DM              | 13                | 12               | 20                      | 41                     | 35                 |
|  |                   |                  |                         |                        |                    |
| Avg. DM Intake, lb/cow/day             | 68                | 57               | 44                      | 26                     | 30                 |
| DHI Milk lb./DMI lb.                   | 1.74              | 1.33             | 2.27                    | --                     | --                 |
| Tank Milk lb./DMI lb.<br>1.58          | --                | --               | --                      | --                     | --                 |
| Feed Cost, \$/cow/d                    | 4.34              | 3.40             | 3.30                    | 1.70                   | 1.46               |
| Feed Cost, \$/cwt. DHI Milk            | 3.70              | 4.48             | 3.30                    | --                     | --                 |
| Feed Cost, \$/cwt. Tank Milk<br>\$4.05 | --                | --               | --                      | --                     | --                 |

**Table 18a. Ingredient composition of formulations for Oechsner Farms when surveyed Feb. 10, 2004.**

| <u>Item</u>                      | <u>Milking Cows</u> | <u>High 2-yr Olds</u> | <u>Post-Fresh Group</u> | <u>Far-Off Dry Group</u> | <u>Pre-Fresh Group</u> |
|----------------------------------|---------------------|-----------------------|-------------------------|--------------------------|------------------------|
| <u>Ingredients, % of DM</u>      |                     |                       |                         |                          |                        |
| Straw                            | --                  | --                    | --                      | 9.7                      | 2.6                    |
| Hay                              | 4.4                 | 4.9                   | 17.7                    | --                       | 15.5                   |
| Oatlage                          | --                  | --                    | --                      | 36.9                     | 13.8                   |
| Haylage                          | 26.6                | 30.7                  | 26.6                    | --                       | 1.9                    |
| Corn Silage                      | 21.9                | 16.9                  | 14.5                    | 36.2                     | 34.6                   |
| Hi-Moisture Shelled Corn         | 20.5                | 22.0                  | 19.2                    | --                       | 10.5                   |
| Dry Shelled Corn                 | --                  | --                    | --                      | 8.7                      | --                     |
| Beet Pulp                        | --                  | --                    | --                      | --                       | 8.3                    |
| Purina Milking Custom – Ext, WCS | 20.6                | 19.6                  | 17.0                    | --                       | --                     |
| Purina Prefresh Custom           | --                  | --                    | --                      | --                       | 8.9                    |
| Purina Dry Cow Custom            | --                  | --                    | --                      | 2.9                      | --                     |
| Roasted Soybeans                 | 6.0                 | 5.9                   | 5.0                     | --                       | --                     |
| Soybean Meal 48                  | --                  | --                    | --                      | 4.8                      | 3.9                    |
| Minerals/Vitamins/Additives      | --                  | --                    | --                      | 0.8                      | --                     |
| <u>List of Feed Additives</u>    |                     |                       |                         |                          |                        |
| Sodium Bicarbonate               | Y                   | Y                     | Y                       | --                       | --                     |
| Zinpro-100®                      | Y                   | Y                     | Y                       | --                       | Y                      |
| Yeast                            | Y                   | Y                     | Y                       | --                       | Y                      |
| Anionic Salts                    | --                  | --                    | --                      | --                       | Y                      |

**Table 18b. Nutrient composition of formulations , intake, feed efficiency, and feed cost for Oechsner Farms when surveyed Feb. 10, 2004.**

| <u>Item</u>                            | <u>Milking Cows</u> | <u>High 2-yr Olds</u> | <u>Post-Fresh Group</u> | <u>Far-Off Dry Group</u> | <u>Pre-Fresh Group</u> |
|--|---------------------|-----------------------|-------------------------|--------------------------|------------------------|
| <u>Nutrients</u>                       |                     |                       |                         |                          |                        |
| % DM                                   | 54                  | 54                    | 58                      | 49                       | 55                     |
| % CP (DMB)                             | 18.5                | 18.5                  | 18.5                    | 11.5                     | 14.5                   |
| RUP (% of CP)                          | 35                  | 35                    | 34                      | 30                       | 35                     |
| % NDF (DMB)                            | 28.8                | 28.7                  | 30.8                    | 46.2                     | 39.3                   |
| % NDF from forage (DMB)                | 21.2                | 21.2                  | 24.0                    | 43.8                     | 31.9                   |
| % Forage (DMB)                         | 53                  | 53                    | 58                      | 83                       | 69                     |
| % NFC (DMB)                            | 40.7                | 40.9                  | 38.7                    | 33.4                     | 36.1                   |
| % Starch (DMB)                         | 27.3                | 27.9                  | 26.0                    | 19.2                     | 20.2                   |
| % Fat (DMB)                            | 6.4                 | 6.3                   | 5.8                     | 2.9                      | 2.7                    |
| % TDN <sub>1x</sub> (DMB)              | 76.4                | 76.1                  | 74.0                    | 66.7                     | 68.0                   |
| % Ca (DMB)                             | 1.03                | 1.07                  | 1.09                    | 0.60                     | 0.94                   |
| % P (DMB)                              | 0.40                | 0.40                  | 0.39                    | 0.31                     | 0.31                   |
| % Mg (DMB)                             | 0.39                | 0.39                  | 0.38                    | 0.36                     | 0.40                   |
| % K (DMB)                              | 1.27                | 1.33                  | 1.42                    | 1.56                     | 1.34                   |
| % Salt (DMB; added)                    | 0.37                | 0.32                  | 0.28                    | 0.10                     | --                     |
| Supp. Vitamin A, IU/lb DM              | 4224                | 4016                  | 3494                    | 2640                     | 3897                   |
| Supp. Vitamin D, IU/lb DM              | 721                 | 686                   | 597                     | 767                      | 1084                   |
| Supp. Vitamin E, IU/lb DM              | 14                  | 13                    | 11                      | 71                       | 79                     |
|  |                     |                       |                         |                          |                        |
| Avg. DM Intake, lb/cow/day             | 58                  | 52                    | 45                      | 27                       | 30                     |
| Tank Milk lb./DMI lb.<br>1.70          | --                  | --                    | --                      | --                       | --                     |
| Feed Cost, \$/cow/d                    | 4.10                | 3.63                  | 2.95                    | 1.39                     | 1.76                   |
| Feed Cost, \$/cwt. Tank Milk<br>\$4.15 | --                  | --                    | --                      | --                       | --                     |

**Table 19. High-Group TMR evaluation using NRC (2001) Model for six selected high-producing WI dairy herds surveyed Jan.-Feb., 2004.**

| <u>Item</u>                          | <u>Hensen</u> | <u>Koepke</u> | <u>Rosy Lane</u> | <u>Crave</u> | <u>So-Fine</u> | <u>Oechsner</u> |
|--------------------------------------|---------------|---------------|------------------|--------------|----------------|-----------------|
| <u>NE<sub>L</sub> Allowable Milk</u> |               |               |                  |              |                |                 |
| lb/d                                 | 104           | 110           | 99               | 105          | 114            | 102             |
| % of observed                        | 97%           | 107%          | 97%              | 93%          | 97%            | 104%            |
| <u>MP Allowable Milk</u>             |               |               |                  |              |                |                 |
| lb/d                                 | 101           | 97            | 102              | 103          | 116            | 96              |
| % of observed                        | 95%           | 95%           | 100%             | 92%          | 98%            | 98%             |
| Lysine, % of MP                      | 6.2           | 6.3           | 6.2              | 6.4          | 6.2            | 6.2             |
| Methionine, % of MP                  | 1.8           | 1.8           | 1.8              | 2.1          | 1.8            | 1.8             |
| Lysine:Methionine                    | 3.4           | 3.5           | 3.4              | 3.1          | 3.4            | 3.4             |