

## 2022 Virginia FFA Dairy Cattle Evaluation and Management Career Development Event Team Activity

### Scenario

Hokie Holsteins dairy farm is located in Southside Virginia. A new herd manager just started working at the farm and asks your team for assistance in evaluating the herd's records because they are concerned about the current state of reproduction and genetics management in the herd. They provided you with a DHI-202 Herd Summary to help troubleshoot herd issues related to the reproduction and genetics program. They also supplied the following background information.

- The operation consists of 161 milking cows, 37 dry cows, and 268 replacement heifers.
- The milking herd is housed in a bedded pack barn with access to outside loafing areas from April through October.
- The herd is milked twice a day at 9:30 AM and 7:30 PM in a double-8 herringbone parlor.
- Ninety-nine percent of the herd is bred artificially.
- The herd selects service sires on the basis of Lifetime Net Merit (NM\$). Semen is routinely purchased from two bull studs.
- The herd does not currently use sexed semen.
- Heats are detected by casual visual observation and Kamar heat patches plus tail chalk.
- Two employees are responsible for artificial insemination. One has been breeding cows for over 30 years; the other for almost 2 years.
- The voluntary waiting period for the herd is 60 days.
- The milking herd is fed a total mixed ration twice a day.
- Dry cows are housed in a bedded pack barn and have access to pasture. They are moved to the main barn area prior to calving and fed a pre-fresh ration.
- The herd has a strong relationship with a local veterinarian who specializes in dairy. The main veterinarian works closely with the herd on reproduction and udder health, and develops the herd's vaccination program. Another veterinarian provides emergency care.

### Assignment

Briefly discuss the strengths and weaknesses you detect in management related to reproduction and genetics. Support this by citing specific items to support your conclusions. List problems in order of priority (influence on potential herd profit) along with your recommendations for management approaches to correct these problems. In addition, the herd manager has a few specific questions for your team:

1. Are too many cows being culled for reproduction?
2. If reproduction is truly a concern in the herd, which is the greater issue - heat detection or conception rate?
3. What changes would your team recommend for the genetics program? Why?

# HERD SUMMARY

DHI-202

Test Date      Samples at Lab      Processed  
07-19-2022      07-25-2022      07-25-2022

|       |    |           |        |        |       |        |
|-------|----|-----------|--------|--------|-------|--------|
| Breed | HO | Type Test | DHI-AP | Assoc. | Supv. | String |
|-------|----|-----------|--------|--------|-------|--------|

## Production, Income & Feed Cost Summary

|                                     | Daily Average per Cow on Test Day |          | Rolling Yearly Herd Averages |         |       |       |
|-------------------------------------|-----------------------------------|----------|------------------------------|---------|-------|-------|
|                                     | Number                            | %        | Number                       | %       |       |       |
| Total Cows                          | 192                               |          | 201                          |         |       |       |
| Cows in Milk                        | 150                               | 78       | 176                          | 88      |       |       |
| Milk Lbs (All Cows)                 | 55.6                              |          | 24582                        |         |       |       |
| Fat Lbs (All Cows)                  | 2.17                              |          | 967                          |         |       |       |
| Fat %                               | 3.9                               |          | 3.9                          |         |       |       |
| Protein Lbs (All Cows)              | 1.78                              |          | 785                          |         |       |       |
| Protein %                           | 3.2                               |          | 3.2                          |         |       |       |
| Milk Lbs (Milking Cows)             | 71.2                              |          |                              |         |       |       |
|                                     | Milking Cows                      | All Cows |                              |         |       |       |
| Silage                              | Lbs Consumed                      |          |                              |         |       |       |
| Other Succulents or Blended Rations | Lbs Consumed                      |          |                              |         |       |       |
| Dry Forage                          | Lbs Consumed                      |          |                              |         |       |       |
| Other Feeds                         | Lbs Consumed                      |          |                              |         |       |       |
| Pasture                             |                                   |          |                              |         |       |       |
| Concentrates                        | Lbs Consumed                      |          |                              |         |       |       |
| Cost of Concentrates \$             |                                   |          |                              |         |       |       |
| Total Feed Cost \$                  |                                   |          |                              |         |       |       |
| Income Over Feed Cost \$            |                                   |          |                              |         |       |       |
| Feed Cost per CWT Milk \$           |                                   |          |                              |         |       |       |
| Value of Product \$                 | 11.76                             | 9.19     | 4177                         |         |       |       |
| Milk Blend Price                    | Per CWT                           | % Fat    | % Pro                        | Per CWT | % Fat | % Pro |
|                                     | 16.50                             | 3.5      |                              | 17.00   | 3.5   |       |

## Reproductive Summary Of Current Breeding Herd

|                          |                                |                     |  |                    |                   |                               |  |    |    |    |
|--------------------------|--------------------------------|---------------------|--|--------------------|-------------------|-------------------------------|--|----|----|----|
| Total Cows Breeding Herd | Voluntary Waiting Period (VWP) | Days to 1st Service | Cows With No Service Dates or Diag. Open |                    |                   | Cows Bred But Not Diag. Preg. |  |    |    |    |
|                          |                                |                     | Open VWP to 100 Days                     | Open Over 100 Days | Number Diag. Open | Days Open at Last Service     |  |    |    |    |
| 60                       | 60                             | 88                  | 2  | 12                 | 5                 | Number Cows                   |  | 14 | 12 | 19 |
|                          |                                |                     | 3  | 20                 | 8                 | % of Breeding Herd            |  | 23 | 20 | 32 |

## Reproductive Summary Of Total Herd

|                       | Days Open at 1st Service |                   |                 | Avg. Days to 1st Service | Services per Pregnancy          |          | Projected Minimum |           | Service or Heat Interval |                  | Services for Past 12 Months |                 |                 |                       |
|-----------------------|--------------------------|-------------------|-----------------|--------------------------|---------------------------------|----------|-------------------|-----------|--------------------------|------------------|-----------------------------|-----------------|-----------------|-----------------------|
|                       | Number Under VWP         | Number VWP to 100 | Number Over 100 |                          | Preg. Cows                      | All Cows | Calving Interval  | Days Open | Interval Length          | Number Intervals | Service Number              | Number Services | Conception Rate | Service Sire Merit \$ |
| 1st Lact              | 17                       | 42                | 16              | 85                       | 2.8                             | 3.9      | 14.2              | 151       | < 18                     | 24               | 1st                         | 172             | 33              | +898                  |
| 2nd Lact              | 5                        | 30                | 15              | 92                       | 3.0                             | 3.8      | 14.3              | 155       | 18 - 24                  | 132              | 2nd                         | 108             | 31              | +850                  |
| 3+ Lacts              | 5                        | 25                | 8               | 87                       | 2.6                             | 4.6      | 14.9              | 172       | 36 - 48                  | 36               | 3rd +                       | 253             | 23              | +864                  |
| All Lacts             | 27                       | 97                | 39              | 88                       | 2.8                             | 4.0      | 14.4              | 157       | Other                    | 91               | <b>Total</b>                | <b>533</b>      | <b>28</b>       | <b>+874</b>           |
| % of All 1st Services | 17                       | 60                | 24              |                          | Current Actual Calving Interval |          | 13.8              |           |                          |                  | Abortions                   | This Test       | Past Year       |                       |
|                       |                          |                   |                 |                          |                                 |          |                   |           |                          | Actual           |                             |                 |                 |                       |
|                       |                          |                   |                 |                          |                                 |          |                   |           |                          | Apparent         |                             | 7               |                 |                       |

## Birth Summary

| Dam's Lact Num | Offspring Born |          |            |          |                          |   |   |     |      |
|----------------|----------------|----------|------------|----------|--------------------------|---|---|-----|------|
|                | Males          |          | Females    |          | Calving Difficulty Score |   |   |     |      |
|                | Alive          | Dead     | Alive      | Dead     | 1                        | 2 | 3 | 4-5 | %4-5 |
| 1              | 24             |          | 41         | 1        |                          |   |   |     |      |
| 2+             | 72             | 2        | 70         | 1        |                          |   |   |     |      |
| <b>Total</b>   | <b>96</b>      | <b>2</b> | <b>111</b> | <b>2</b> |                          |   |   |     |      |

## Cows To Be Milking, Dry, Calving By Month

|                  | Aug | Sep | Oct | Nov | Dec | Jan |
|------------------|-----|-----|-----|-----|-----|-----|
| * Milking        | 144 | 146 | 141 | 131 | 116 | 116 |
| Dry              | 36  | 26  | 24  | 27  | 35  | 29  |
| Cows to Calve    | 22  | 24  | 13  | 12  | 11  | 16  |
| Heifers to Calve |     |     |     |     |     |     |

\* Assumes 4.5% per month culling rate.

## Yearly Reproductive Summary

| Test Date       | % Heats Obs. | Conception Rate | Preg Rate | Number Services | Number Confirm Preg | Number Calving | Total Preg Cows |
|-----------------|--------------|-----------------|-----------|-----------------|---------------------|----------------|-----------------|
| Test Dropped    | 34           | 24              | 11        | 25              | 18                  | 14             | 127             |
| 8-12-21         | 50           | 7               | 4         | 45              | 12                  | 34             | 107             |
| 9-16-21         | 61           | 0               | 2         | 51              | 3                   | 42             | 74              |
| 10-14-21        | 67           | 25              | 3         | 57              | 2                   | 22             | 59              |
| 11-13-21        | 57           | 30              | 14        | 71              | 1                   | 15             | 48              |
| 12-09-21        | 54           | 44              | 22        | 57              | 15                  | 10             | 56              |
| 1-13-22         | 53           | 37              | 20        | 68              | 31                  | 11             | 75              |
| 2-09-22         | 31           | 26              | 14        | 31              |                     | 15             | 65              |
| 3-09-22         | 38           | 41              | 17        | 32              | 36                  | 20             | 87              |
| 4-13-22         | 48           | 32              | 13        | 41              | 12                  | 25             | 87              |
| 5-24-22         | 48           | 35              | 17        | 55              | 11                  | 7              | 96              |
| 6-21-22         | 29           |                 |           | 22              | 20                  | 1              | 114             |
| 7-19-22         | 57           |                 |           | 40              | 13                  | 12             | 113             |
| <b>Averages</b> | <b>50</b>    | <b>28</b>       | <b>17</b> | <b>48</b>       | <b>13</b>           | <b>18</b>      | <b>82</b>       |
| <b>Totals</b>   |              |                 |           | <b>570</b>      |                     | <b>214</b>     |                 |

## Miscellaneous Herd Information

|                                   | Shipped-Test Day Comparison |             | Milking Times | Wgh      | Spl |   |
|-----------------------------------|-----------------------------|-------------|---------------|----------|-----|---|
|                                   | Test Day                    | Yearly Avg. |               |          |     |   |
| Sum of Test Day Wts               | 10322                       | 13248       | 1st           | 07:30 PM | N   | N |
| Reported Avg. Daily Bulk Tank Wts | 10196                       | 12866       | 2nd           | 09:30 AM | Y   | Y |
| % Deviation                       | +1.2                        | +3.0        | 3rd           |          |     |   |

Remarks:

|           |  |           |            |       |    |        |  |
|-----------|--|-----------|------------|-------|----|--------|--|
| Herd Code |  | Test Date | 07-19-2022 | Breed | HO | String |  |
|-----------|--|-----------|------------|-------|----|--------|--|

Identification And Genetics (Genetic Data Source: CDCB)

Stage Of Lactation Profile

|                    |           | Stage of Lactation (Days) |          |           |           |       |     | Total or Average |
|--------------------|-----------|---------------------------|----------|-----------|-----------|-------|-----|------------------|
|                    |           | 1 - 40                    | 41 - 100 | 101 - 199 | 200 - 305 | 306 + |     |                  |
|                    |           |                           |          |           |           |       |     |                  |
| Number Milking     | 1st Lact  |                           | 6        | 27        | 11        | 15    | 59  |                  |
|                    | 2nd Lact  | 3                         |          | 15        | 11        | 14    | 43  |                  |
|                    | 3+ Lacts  | 9                         |          | 13        | 15        | 11    | 48  |                  |
|                    | All Lacts | 12                        | 6        | 55        | 37        | 40    | 150 |                  |
|                    |           |                           |          |           |           |       |     |                  |
| Average Daily Milk | 1st Lact  |                           | 74       | 72        | 67        | 59    | 68  |                  |
|                    | 2nd Lact  |                           |          | 92        | 58        | 47    | 62  |                  |
|                    | 3+ Lacts  | 84                        |          | 81        | 83        | 67    | 79  |                  |
|                    | All Lacts | 63                        | 74       | 80        | 71        | 57    | 70  |                  |
| % Fat & Pro        | 1st Lact  | % Fat                     | 3.9      | 3.8       | 3.7       | 4.2   | 3.9 |                  |
|                    |           | % Pro                     | 2.9      | 3.2       | 3.3       | 3.6   | 3.3 |                  |
|                    | 2nd Lact  | % Fat                     |          | 3.6       | 4.0       | 4.0   | 3.6 |                  |
|                    |           | % Pro                     |          | 3.2       | 3.5       | 3.7   | 3.2 |                  |
|                    | 3+ Lacts  | % Fat                     | 4.9      | 3.8       | 3.7       | 4.0   | 4.0 |                  |
|                    |           | % Pro                     | 2.9      | 3.0       | 3.2       | 3.4   | 3.1 |                  |
|                    | All Lacts | % Fat                     | 4.9      | 3.9       | 3.7       | 3.8   | 4.1 | 3.9              |
|                    |           | % Pro                     | 2.9      | 2.9       | 3.2       | 3.3   | 3.6 | 3.3              |
| SCC ACT            | 1st Lact  |                           | 674      | 312       | 148       | 390   | 339 |                  |
|                    | 2nd Lact  |                           |          | 446       | 377       | 112   | 353 |                  |
|                    | 3+ Lacts  | 210                       |          | 775       | 150       | 166   | 348 |                  |
|                    | All Lacts | 210                       | 674      | 465       | 205       | 244   | 346 |                  |
| SCC ACT >= 200     | Number    | 2                         | 3        | 15        | 8         | 9     | 37  |                  |
|                    | Percent   | 17                        | 50       | 27        | 22        | 23    | 25  |                  |

Weighted SCC ACT (Nearest 1,000)

| Age Group                        | Number Animals | Avg. Age (Yr-Mo) | Num. Ident. By |     | Number ID Changes              | No. Animals with Merit \$ | Average Merit \$ |      | Herd Merit \$ Option             | Genetic Profile of Service Sires |                     |                      |                |
|----------------------------------|----------------|------------------|----------------|-----|--------------------------------|---------------------------|------------------|------|----------------------------------|----------------------------------|---------------------|----------------------|----------------|
|                                  |                |                  | Sire           | Dam |                                |                           | Animal           | Sire |                                  | A.I. Progeny Tested              | A.I. Genomic Tested | All Other A.I. Bulls | Non A.I. Bulls |
| 0 - 12                           | 100            | 0-07             | 100            | 99  |                                | 99                        | +456             | +797 | NM                               |                                  |                     |                      |                |
| 13+                              | 169            | 2-00             | 168            | 168 |                                | 164                       | +340             | +639 |                                  |                                  |                     |                      |                |
| Replacements                     | 269            | 1-05             | 268            | 267 |                                | 263                       | +384             | +701 |                                  |                                  |                     |                      |                |
| 1st Lact                         | 80             | 2-02             | 73             | 75  |                                | 71                        | +246             | +513 | % of Herd Bred to                | 12                               | 87                  |                      | 1              |
| 2nd Lact                         | 55             | 3-03             | 50             | 50  |                                | 45                        | +227             | +416 | Number of Bulls Used             | 5                                | 17                  |                      |                |
| 3+ Lacts                         | 57             | 5-00             | 51             | 52  |                                | 50                        | +139             | +319 | Average Merit \$                 | +835                             | +883                | +0                   | DCR Milk       |
| All Lacts                        | 192            | 3-04             | 174            | 177 |                                | 166                       | +209             | +431 | Avg. Percentile Rank (Net Merit) | 87                               | 93                  |                      | 98             |
| % Identified (Producing Females) |                |                  | 91             | 92  | No. Heifers Age Over 30 Months |                           |                  | 36   |                                  |                                  |                     |                      |                |

Production By Lactation Summary

| Lactation | Number of Cows | Avg. Age (Mo) | Peak Milk | Summit Milk | Proj 305 Day ME |      |     | Difference From Herdmates |     |       | Avg. Body Wt. |
|-----------|----------------|---------------|-----------|-------------|-----------------|------|-----|---------------------------|-----|-------|---------------|
|           |                |               |           |             | Milk            | Fat  | Pro | Milk                      | Fat | Pro   |               |
|           |                |               |           |             | 1st Lact        | 80   | 26  | 81                        | 73  | 26199 |               |
| 2nd Lact  | 55             | 39            | 107       | 99          | 28802           | 1101 | 892 | +1921                     | +69 | +61   | 1284          |
| 3+ Lacts  | 57             | 60            | 116       | 108         | 28029           | 1053 | 840 | +1262                     | +24 | +16   | 1384          |
| All Lacts | 192            | 40            | 99        | 90          | 27436           | 1053 | 844 | +927                      | +30 | +27   | 1238          |

Somatic Cell Summary

| % Cows SCC Score                          |                   |                   |                  |             |
|---|-------------------|-------------------|------------------|-------------|
| 0,1,2,3                                   | 4                 | 5                 | 6                | 7,8,9       |
| Below 142,000                             | 142,000 - 283,000 | 284,000 - 565,000 | 566,000 - 1.13 M | Over 1.13 M |
| 68  | 10                | 7                 | 7                | 8           |
| 69  | 10                | 5                 | 8                | 8           |
| 64  | 16                | 2                 | 11               | 7           |
| 67  | 12                | 5                 | 8                | 8           |
| 30-Day Herd Production Lost From High SCC |                   |                   |                  |             |
| Milk                                      | 11121             | Dollars (\$)      | 1936             |             |

Dry Cow Profile

| Lact. | Number Dry Periods | Avg. Days Dry | Number Dry by Days |       |      |
|-------|--------------------|---------------|--------------------|-------|------|
|       |                    |               | < 40               | 40-70 | > 70 |
| 1     |                    |               |                    |       |      |
| 2     | 54                 | 59            |                    | 51    | 3    |
| 3+    | 57                 | 70            | 1                  | 38    | 18   |
| All   | 111                | 64            | 1                  | 89    | 21   |

Yearly Summary Of Cows Entered And Left The Herd

| Lact.                                  | Cows Entered |    | Cows Left |    | Number of Cows Left the Herd |          |       |      |       |             |              |         |      |          |
|--|--------------|----|-----------|----|------------------------------|----------|-------|------|-------|-------------|--------------|---------|------|----------|
|  | Num.         | %  | Num.      | %  | Dairy                        | Low Prod | Repro | Mast | Udder | Feet & Legs | Injury Other | Disease | Died | Not Rptd |
|  | 1            | 76 | 38        | 25 | 12                           |          | 2     | 2    | 3     | 4           | 3            | 5       |      | 3        |
| 2                                      |              |    | 37        | 18 |                              |          | 7     | 20   | 1     | 5           | 1            |         | 3    |          |
| 3+                                     |              |    | 46        | 23 |                              | 1        | 5     | 18   | 4     | 9           | 1            |         | 8    |          |
| All                                    | 76           | 38 | 108       | 54 |                              | 3        | 14    | 41   | 9     | 17          | 7            |         | 14   | 3        |
| 52 % Left Herd For Involuntary Reasons |              |    |           |    |                              |          |       |      |       |             |              |         |      |          |

Yearly Production And Mastitis Summary

| Test Date    | Days In Test Period | Number Cows In Herd On Test Day | Test Day Averages (Milking Cows) |                   | 150 Day Milk | Test Period Persist. Index | Test Day Averages (All Cows) |                  |             |      | Rolling Yearly Herd Average |     |     | Somatic Cell Count Summary |    |    |   |   | MUN | Number Left Herd      |                     |      |      |
|--------------|---------------------|---------------------------------|----------------------------------|-------------------|--------------|----------------------------|------------------------------|------------------|-------------|------|-----------------------------|-----|-----|----------------------------|----|----|---|---|-----|-----------------------|---------------------|------|------|
|              |                     |                                 | DIM                              | Milk              |              |                            | % In Milk                    | Milk             | %Fat        | %Pro | Milk                        | Fat | Pro | % Cows SCC Score           |    |    |   |   |     | Avg. SCC Linear Score | Wt. Avg. Actual SCC | Died | Sold |
|              |                     |                                 | Below 142,000                    | 142,000 - 283,000 |              |                            | 284,000 - 565,000            | 566,000 - 1.13 M | Over 1.13 M |      |                             |     |     |                            |    |    |   |   |     |                       |                     |      |      |
| Test Dropped | 27                  | 224                             | 194                              | 75.8              | 83.9         | 102                        | 75                           | 56.9             | 3.9         | 3.1  | 24548                       | 927 | 776 | 63                         | 13 | 11 | 5 | 8 | 2.8 | 375                   |                     |      | 2    |
| 8-12-21      | 36                  | 218                             | 175                              | 74.0              | 80.9         | 97                         | 78                           | 58.1             | 4.0         | 3.0  | 24729                       | 935 | 782 | 76                         | 7  | 5  | 7 | 5 | 2.2 | 212                   |                     | 3    | 11   |
| 9-16-21      | 35                  | 212                             | 152                              | 72.8              | 77.2         | 98                         | 85                           | 61.8             | 3.8         | 3.1  | 24704                       | 935 | 779 | 69                         | 10 | 10 | 5 | 6 | 2.5 | 256                   |                     | 4    | 13   |
| 10-14-21     | 28                  | 209                             | 144                              | 77.9              | 81.0         | 105                        | 88                           | 68.6             | 3.7         | 3.1  | 24738                       | 936 | 777 | 67                         | 11 | 10 | 4 | 8 | 2.6 | 303                   |                     |      | 10   |
| 11-13-21     | 30                  | 202                             | 155                              | 78.5              | 81.9         | 101                        | 90                           | 70.4             | 3.9         | 3.3  | 24836                       | 936 | 780 | 73                         | 8  | 7  | 7 | 4 | 2.4 | 197                   |                     |      | 14   |
| 12-09-21     | 26                  | 197                             | 165                              | 80.9              | 84.7         | 103                        | 90                           | 72.7             | 3.9         | 3.3  | 25037                       | 945 | 787 | 69                         | 13 | 8  | 4 | 7 | 2.5 | 290                   |                     | 1    | 4    |
| 1-13-22      | 35                  | 192                             | 181                              | 80.7              | 86.0         | 102                        | 89                           | 71.5             | 3.9         | 3.3  | 25154                       | 953 | 794 | 73                         | 10 | 6  | 4 | 7 | 2.3 | 251                   |                     |      | 5    |
| 2-09-22      | 27                  | 188                             | 188                              | 81.8              | 86.5         | 103                        | 90                           | 73.5             | 4.1         | 3.2  | 25001                       | 958 | 789 | 73                         | 10 | 6  | 4 | 7 | 2.4 | 253                   |                     |      | 4    |
| 3-09-22      | 28                  | 197                             | 180                              | 80.7              | 85.2         | 102                        | 94                           | 75.7             | 4.1         | 3.2  | 24812                       | 963 | 785 | 71                         | 11 | 8  | 3 | 8 | 2.4 | 316                   |                     | 1    | 8    |
| 4-13-22      | 35                  | 202                             | 188                              | 78.0              | 83.7         | 100                        | 96                           | 74.9             | 4.0         | 3.2  | 24826                       | 970 | 788 | 75                         | 8  | 5  | 3 | 8 | 2.3 | 285                   |                     |      | 13   |
| 5-24-22      | 41                  | 200                             | 219                              | 72.0              | 80.4         | 97                         | 93                           | 66.6             | 4.0         | 3.2  | 24753                       | 974 | 788 | 74                         | 9  | 6  | 4 | 8 | 2.7 | 312                   |                     | 2    | 6    |
| 6-21-22      | 28                  | 198                             | 231                              | 71.9              | 82.1         | 100                        | 81                           | 58.4             | 3.7         | 3.2  | 24646                       | 971 | 786 | 73                         | 11 | 4  | 4 | 7 | 2.4 | 293                   |                     | 1    | 2    |
| 7-19-22      | 28                  | 192                             | 224                              | 71.2              | 82.3         | 100                        | 78                           | 55.6             | 3.9         | 3.2  | 24582                       | 967 | 785 | 67                         | 12 | 5  | 8 | 8 | 2.7 | 346                   |                     | 2    | 4    |
| Averages     | 31                  | 201                             | 183                              | 76.8              | 82.6         | 101                        | 88                           | 67.2             | 3.9         | 3.2  |                             |     |     | 71                         | 10 | 7  | 5 | 7 | 2.5 | 276                   |                     | 14   | 94   |