

**GUIDE TO ASSEMBLING DATA FOR COW-CALF
STANDARDIZED PERFORMANCE ANALYSIS***

SPA-38
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DATA NEEDED

Assembling necessary data for the Cow-Calf Standardized Performance Analysis (SPA) is the most important step in the SPA analysis process. This article and worksheets will help prepare data for SPA prior to the consultant's visit or to group workshops to help complete the SPA analysis. It is also good for the first time software user to use the worksheets.

This worksheet focuses on the SPA production data. It is good to use Figure 1 and/or Figure 2 to get your data organized by spring or fall calving season. Remember that the SPA analysis for the fiscal year the calves are weaned. For a spring calving herd, cows are exposed in the proceeding fiscal year (e.g. 2002 spring calves are from your cows exposed in 2001).

Production Data

The following production data will be assembled in these pages.

- General ranch and herd descriptive data
- The cowherd management/production season
- Weaned calf production, value and cull or breeding cattle sales
- Land use – both owned and leased
- Feed use and inventory
- Breeding cattle inventories, beginning and ending for fiscal year, purchase and raised
- Number of breeding females exposed

Specific Cattle Inventories

The breeding cattle inventory to measure productivity is as follows:

1. End of the fiscal year or at the beginning of the year, as they are the same.
2. Beginning of the breeding season.
3. When cows are pregnancy tested, record bred and open.

Definitions

Select definitions accompany each set of forms so that the user has a clear definition of what data is required.

If users have inventories in other formats they of course do not have to fill out the forms. Just insure all the necessary data is complete.

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Financial Data

It is best to assemble the business financial data in the form that it exists, then have the experienced SPA user to assist in preparing of the data for the SPA analysis. Your accountant can be of great assistance in preparing necessary financial data. Listed below is the most important data needed for the fiscal year, normally the tax year.

For Fiscal or Tax Year Calves are Weaned:

- IRS tax schedules especially Schedule F
- Depreciation schedule
- Loan payment schedules
- Financial statements that have been prepared for the fiscal year business analysis or the lender. Anything is helpful for a starting point. Statements would include:
 - Beginning and ending fiscal year balance sheet (ending is next years beginning)
 - Income statement - accrual adjustments will be made for the analysis

Sources for SPA Financial Data:

- IRS tax schedules for fiscal or tax year of analysis
 - Schedule F - Profit or Loss from Farming
 - Form 4562 - Depreciation and Amortization
 - Form 4797 - Sales of Business Property
- Depreciation schedule for operation
- Loan payment schedules available from each lender
- Beginning and ending balance sheet showing all business assets and liabilities. The depreciation schedule has information for depreciable assets
- Cattle inventories, see next section on production data

Good to Have:

- End of year inventories for cattle and feed. If there were major differences between beginning and ending inventories of fuel, vet supplies or other high cost item record these inventories for development of accrual adjusted income statements.
- Enterprise revenue and expenses if the business accounting system generates enterprise values. Otherwise, allocation decisions can be made by the manager when doing SPA from the total financial statement. Use what you have first and then learn if there can be improvements.

Getting Started Now

It is best to gather up all of your presently available financial and production information and do the SPA analysis. Nearly all producers can get a good approximation with existing data. Completing the analysis will help guide future record keeping to improve accuracy. Do not worry about cattle inventory valuation. If you are not experienced in the methodology just get the head numbers by category.

Weaning and Cattle Sales Data For the Cow-Calf SPA Production Analysis

The Standardized Performance Analysis (SPA) is production performance measures based on the following concept:

1. All breeding females (cows and replacement heifers) exposed are expected to breed, calve, and wean a calf.
2. Only cows or replacement heifers taken out of the exposed females inventory numbers used to calculate performance are:
 - a. During breeding season
 - ✓ Cows not intended to breed or calve as defined before breeding begins.
 - ✓ Cows transferred out before breeding season ends.
 - b. Between the end of breeding season and calving (branding)
 - ✓ Pregnant females sold or transferred out.
 - ✓ Cows with calves (pairs) sold or transferred out.
3. Cows that are transferred out after the end of the breeding season and are not pregnancy tested are assumed to be open and do not reduce the exposed cow numbers.
4. Cows that are transferred to the fall herd after being exposed in the spring herd are counted twice as exposed cows in the same production year, once in the spring breeding herd and once in the fall herd.

To minimize time and for the most accurate data, it is very important to record the weaning numbers, weights, and net calf price at weaning. Form 1 can facilitate this data recording activity. If you have any question about dates, it is helpful to fill in the dates in Figure 1. Remember the weaning year should correspond to the fiscal year (accounting or normally the tax year) of the analysis. Cull sales should be all those sales actually taking place during the fiscal year.

FORM 1

1. Fiscal Year of Analysis (year calves weaned in):
_____ _____
Beginning Date *Ending Date*

2. Farm or Ranch Location: _____
State _____ *Region*
_____ _____
County *Zip Code*

3. Business Description:
 Business Organization (sole proprietorship, partnership, or corporation): _____
 Accounting Method (cash or accrual): _____

4. Precipitation (Inches): _____
Normal Annual _____ *Fiscal Year Precipitation*

5. Type of Enterprise (commercial or seedstock, spring or fall calving): _____

6. Management/Production Seasons for Mature Females (see Figure 1 on page 5 and gestation table):

	Beginning Date	Ending Date
a) Breeding ¹	_____	_____
b) Pregnancy Testing	_____	_____
c) Calving	_____	_____
d) Weaning	_____	_____

7. Breeding Season:
 Females Exposed: _____ Replacement Heifers Exposed: _____

8. Pregnancy Testing:
 Total Number Tested: _____
 Bred: _____
 Open: _____

9. Size of Herd – Number of Breeding Cows² (At the Beginning of the Fiscal Year): _____

10. Calving:
 Total Cows Calving: _____ Calves Born (Dead or Alive) _____ Live Calves Born or Marked _____

¹ For consistency, use Mature Cow Beginning Breeding Date even though heifers' beginning breeding date may be different.

² Breeding Cows are defined as mature females and heifers of breeding age that have the potential to calve and wean a calf during the fiscal year. This should correspond to the included on the beginning fiscal year balance sheet.

Spring _____

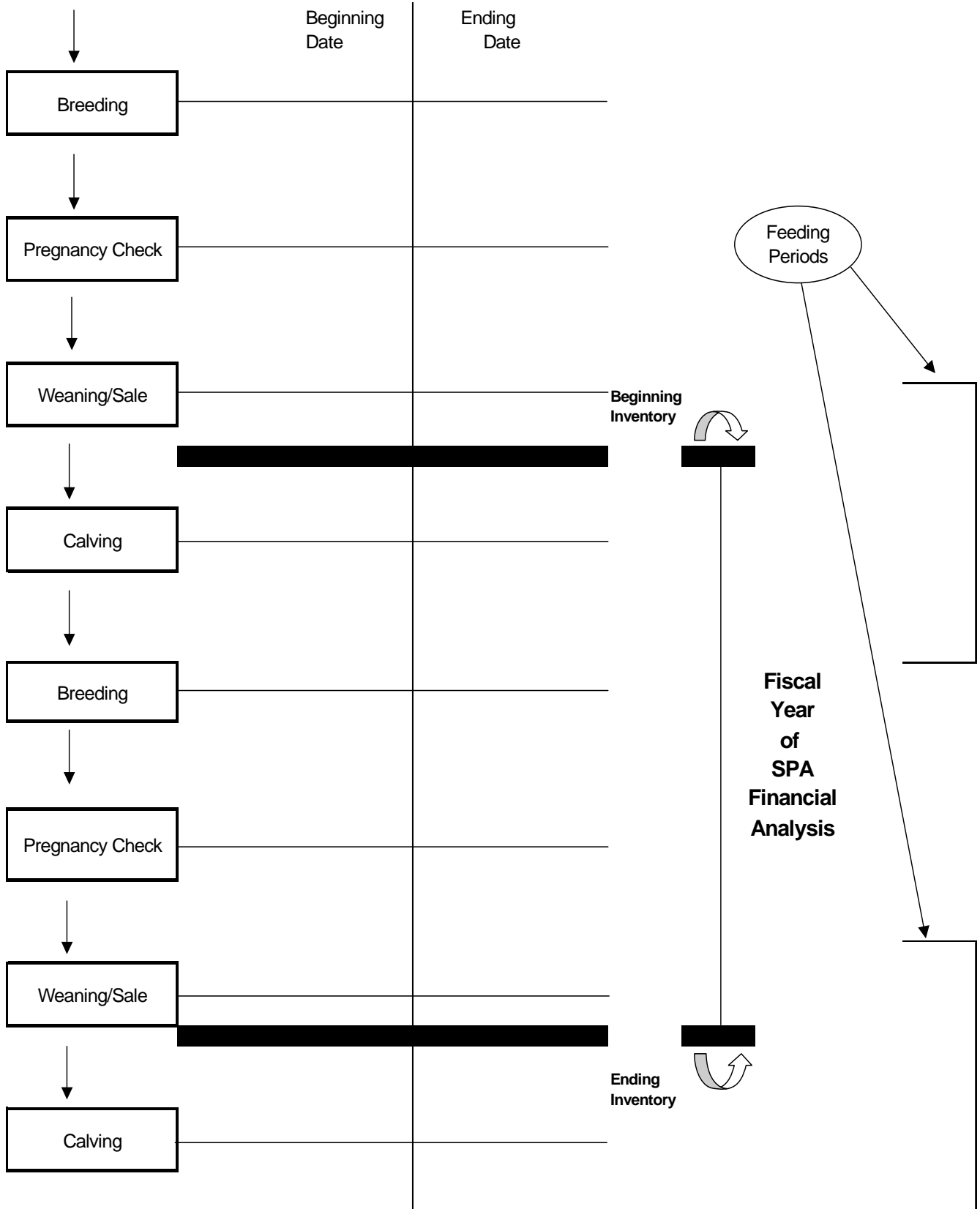


Figure 1. SPA Production Cow-Calf Spring Calving Season and Calendar Fiscal Year Key Data Areas.

Fall _____

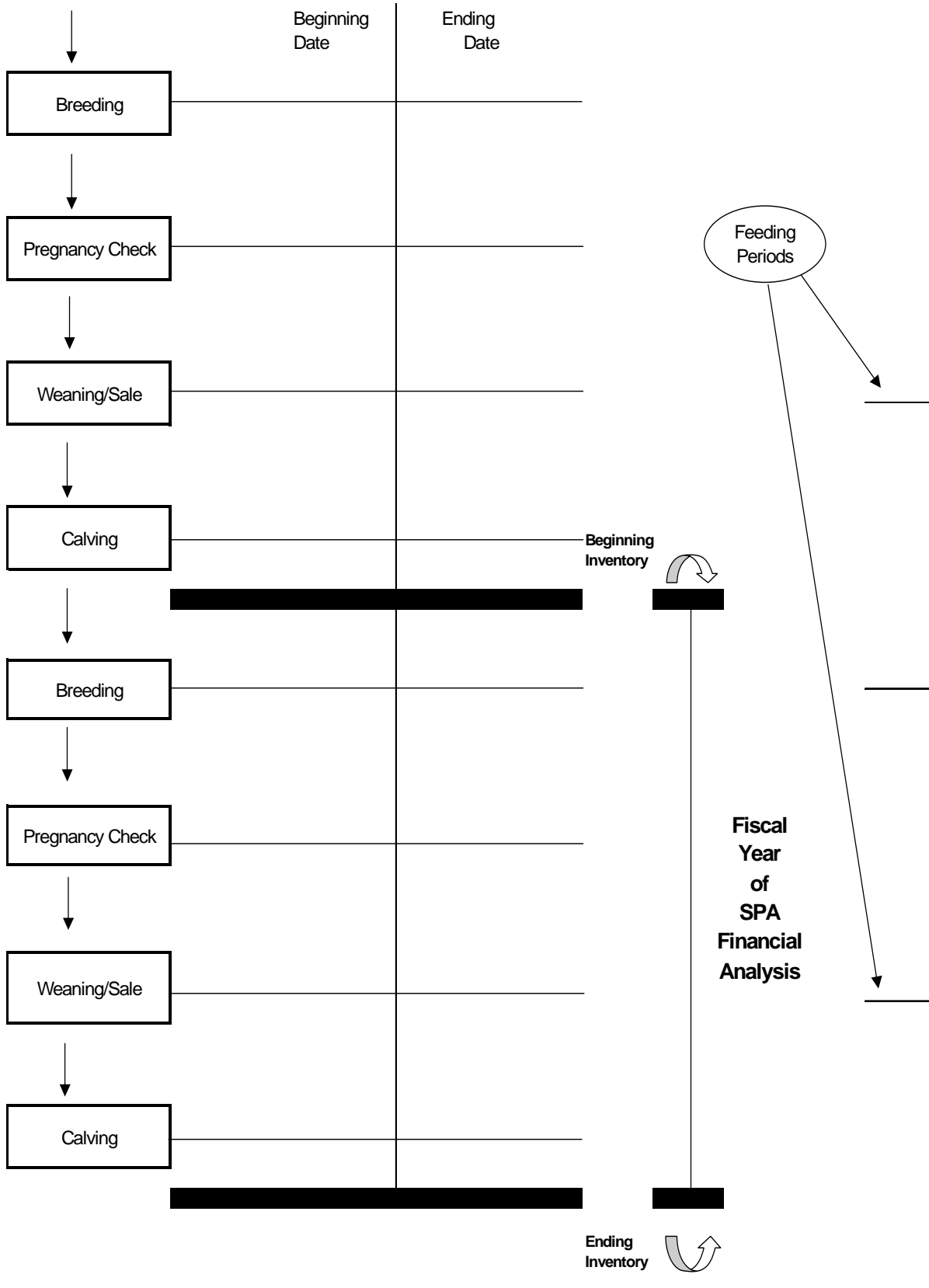


Figure 2. SPA Production Cow-Calf **Fall Calving Season** and Calendar Fiscal Year Key Data Areas.

GESTATION TABLE (285 day)

Find date of service in upper line. Figure below indicates date due to calve.

Jan	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Oct	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12Nov	
Feb	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28				
Nov	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10			Dec	
Mar	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Dec	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10Jan	
Apr	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
Jan	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	Feb	
May	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Feb	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	1	2	3	4	5	6	7	8	9	10	11	12Mar	
Jun	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
Mar	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	Apr	
Jul	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Apr	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10	11	12May	
Aug	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
May	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12Jun	
Sep	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
Jun	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10	11	12	Jul	
Oct	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Jul	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12Aug	
Nov	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
Aug	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	Sep	
Dec	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Sep	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10	11	12Oct	

PRODUCTION DEFINITIONS

Weaned calf production and value - These values must be net payweight prices and weights for calves at weaning time. If the calves are not sold, then these values should be estimated. Weights are, of course, extremely important. Bull calf values for the calves saved to produce bulls for sale are the calves' estimated values if marketed at their commercial steer value.

Female sales - There are two categories of cull sales to be recorded, those sold for slaughter and those sold as breeding cows. This is even if the expectation is to produce only one calf.

Aged bull sales - There are two categories of cull bull sales to be recorded, those sold for slaughter and those aged bulls sold for breeding purposes, even if for only one breeding season.

Figure 1 will help guide the matching of the proper breeding and weaning periods. Remember the SPA financial analysis is for the fiscal year the calves are weaned in.

FORM 1 - CONTINUED
Summary of Cattle Production and Sales for Fiscal Year Worksheet

Weaned Calves Production and Values	Head	Total Payweight Lb.	Total Net Value \$
Bull Calves Weaned			
Sold	_____	_____	_____
Retained	_____	_____	_____
Subtotal Bull Calves*	_____	_____	_____
Steer Calves Weaned			
Sold	_____	_____	_____
Retained	_____	_____	_____
Subtotal Steer Calves*	_____	_____	_____
Heifer Calves Weaned			
Sold	_____	_____	_____
Retained	_____	_____	_____
At Base Value			
Heifers Kept for Replacements	_____	_____	_____
Subtotal Heifer Calves*	_____	_____	_____
Total Weaned Calves Production and Value Of Sales, Retained or Kept for Replacement*	_____	_____	_____

* Totals are calculated by the software.

FORM 1 - CONTINUED
Summary of Cattle Production and Sales for Fiscal Year Worksheet

Cull or Breeding Cattle Sales	Head	Total Payweight Lb.	Total Net Value \$
Aged Female Sales			
Culls for Cows Slaughter Raised	_____	_____	
Culls for Cows Slaughter Purchased	_____	_____	_____
Culled Replacement Heifers Raised	_____	_____	
Culled Repl. Heifers Purchased	_____	_____	_____
For Breeding			
Open & Pregnant Raised	_____		_____
Open & Pregnant Purchased	_____		_____
With Calves (pairs) Raised	_____		_____
With Calves (pairs) Purchased	_____		_____
Subtotal Aged Females*	_____		_____
Aged Bull Sales			
Culls for Slaughter Raised	_____	_____	
Culls for Slaughter Purchased	_____	_____	_____
Breeding Bulls Raised	_____		
Breeding Bulls Purchased	_____		_____
Subtotal Cull & Breeding Bulls*	_____		_____
Total Cull or Breeding Cattle Sales*			

FEED FED DEFINITIONS

Raised feed fed - This is the total pounds (as fed) of raised feed by forage type fed including roughages, complete feed or concentrate, and protein supplement. Include the market value of each raised feed fed by type.

Market value of raised feed fed (valued at the beginning of the feeding season) - This is the market value of the raised feed fed valued at the beginning of the feeding season. This value is the opportunity cost associated with the raised feed activity (i.e. earnings foregone by not selling the raised feed that was fed).

Matching use and costs -- Purchased/raised feed cost - Often times, the actual accrual adjusted raised and purchased feed costs do not match the weaned calf production cycle for most operations. If there are wide fluctuations in feed prices between years, these costs can be somewhat distorted. It is most accurate to calculate feed costs, the fiscal year weaned calf crop, as illustrated in Figure 1.

The financial or fiscal year for most operations includes the end of one winter feeding period (before the calves are born) and the beginning of a second winter feeding period (after the weaned calves are sold or transferred into a new production activity). It is recommended that accurate accrual accounting values be used as the fiscal year cost for raised and purchased feed, see form. This should take into account the end of one wintering year and the beginning of another wintering year.

Implementation of SPA also requires placing a market value on raised feed fed. This should be done at the beginning of the feeding season for the winter before the calves are weaned. Therefore, the total market value for raised feed fed is the total value based on the market value of the feed at the beginning of the feeding season prior to weaning.

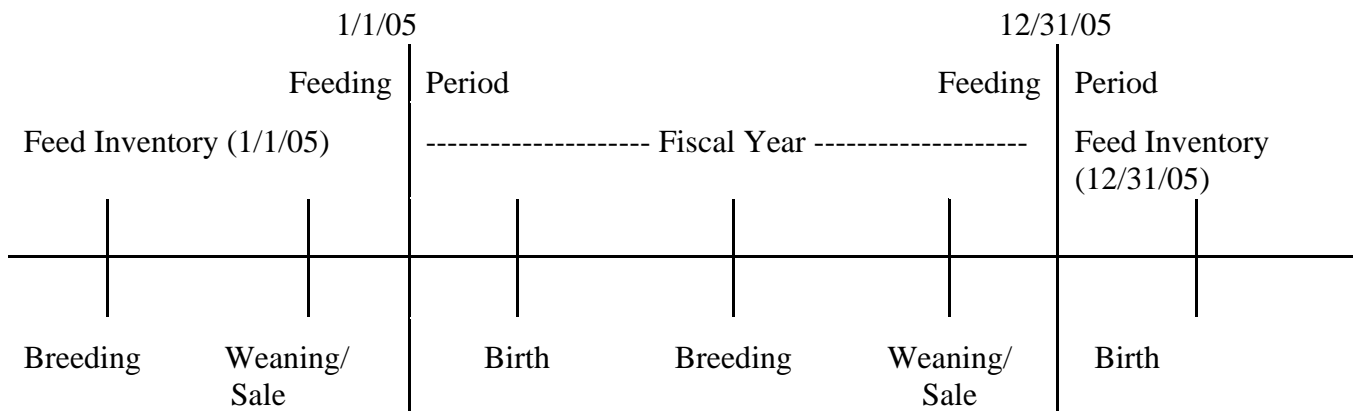


Figure 1. Matching Feeding Costs for Spring Calving Season and Fiscal Year Accounting
In cases of wide variation in feeding cost, it is advisable to use actual costs for the raised feed fed during the winter feeding periods. However, proper adjustments must be made to prevent double accounting during the fiscal year.

Matching of expenses with revenue is challenging in the case of raised feed. Again, consistency

between years will lead to the greatest accuracy. The better the feed use records the more accurately costs can be calculated.

Purchased feed fed - This is the total pounds (as fed) of purchased feed by forage type fed including roughages, complete feed or concentrate, mineral and salt, and protein supplement.

Total pounds of raised/purchased feed fed to breeding cows - This is the total in pounds of all raised or purchased feed fed during the fiscal year. Include feed fed to all classes of animals within the cow-calf enterprise (i.e. breeding cows, bulls, replacement heifers, calves). Feed fed to sale bulls and replacement heifers for sale should not be included, because sale bulls and replacement heifers for sale are enterprises that should be analyzed separately. This number is the numerator for the calculation of pounds of raised/purchased feed fed per breeding cow. The beginning fiscal year inventory of breeding cows will be the denominator.

FORM 2: FEED USE

Feed Use Summary

Supplemental feed fed is important both from a cost and nutrition management standpoint. The feed use form can be used to summarize the total feed used for the cow herd, including replacements and bulls.

FEED USE SUMMARY

	<u>As Fed (Lbs.)</u>	<u>Market Value</u>
Raised Feed:		
Roughage	_____	_____
Complete Feed or Concentrate	_____	_____
Protein Supplement	_____	_____
Total Raised Feed	<input type="text"/>	<input type="text"/>
Purchased Feed:		
Roughage	_____	
Complete Feed or Concentrate	_____	
Mineral and Salt	_____	
Protein Supplement	_____	
Total Raised and Purchased Feed	<input type="text"/>	

See attached form to assist in the inventory to assemble this data.

LAND DEFINITIONS

Grazing acres -- cow-calf enterprise definitions of forage terms - The Forage and Grazing Terminology Committee American Forage and Grassland Council, 1991.

Native unimproved (rangeland and meadows) - Land on which the indigenous vegetation is predominantly grass, grass-like plants, forbs or shrubs and is managed as a natural ecosystem.

Native improved - Land devoted to the production of introduced forages for harvest primarily by grazing; managed as a natural ecosystem.

Improved perennial - Land devoted to the production of introduced perennial forage for harvest primarily by grazing. Improved perennial pasture land must be managed to arrest successional processes.

Annual pasture or forage crop - A crop of cultivated annual plants or plant parts produced to be grazed or harvested for use as feed for animals.

Woodlands (grazeable forestland) - Forest lands that produce, at least periodically, sufficient understory vegetation that can be grazed. Forage is indigenous or, if introduced, it is managed as though it were indigenous.

Crop aftermath - Forage remaining on the land as a consequence of harvest of a crop. At times, crop residues are used for grazing (i.e. rice stubble or wheat stubble). To calculate the acreage, multiply the number of acres times the time spent grazing. For example, 100 acres of crop aftermath grazed for 2 months would yield 16.7 acres ($100 \times 2/12 = 16.7$).

Lease equivalent - Lease equivalent is the annual rate that could be received if the owned grazing land were leased (i.e. opportunity cost or earnings foregone by using the land instead of leasing it). When the economic cost of grazing is calculated, the net lease (discussed below) is added to the financial grazing costs to determine total economic grazing cost.

Lessor cost - Lessor costs are expenses that would be incurred by the landowner (lessor), in the event that the land is leased, to maintain the land in suitable grazing condition. The amount and types of costs included here are dependent on the type of lease agreement that would be signed. Examples of lessor costs include the owner's share of fertilizer expense, weed control expense, and mowing expense. Land tax would also be an expense that most landowners would pay in the event that they leased their land. These expenses should reflect the actual expenses incurred as shown in the financial analysis. When net lease is calculated, this value is subtracted from the lease equivalence.

Opportunity cost owned grazing land (net lease equivalent) - The net lease equivalent is the difference between the expected lease rate of owned grazing land (lease equivalent) and the costs that would be incurred by the landowner (lessor) in the event that the land is leased. The net lease equivalent figure is added to the financial grazing costs to determine total economic grazing cost.

Raised feed acres - Raised feed land acres, i.e. land for hay production, must be adjusted for the amount of production or raised feed actually used by the cow-calf enterprise. Consider for example, a situation where the raised feed land (hay pasture) totaled 85 acres and produced 25,000 pounds of hay. Of the total hay production 12,500 pounds of the hay is fed, 10,000 pounds sold and the balance, 2500 pounds, is in inventory. Therefore, 50% of the production $[(12500/25000) \times 100]$ was actually fed to the cow-calf enterprise and the acreage should be adjusted. Total raised feed acres times percentage of production fed (i.e. $85 \times (12500/25000) = 42.5$ ac.) equals adjusted raised feed land acreage. Silage fed should be converted to a dry air basis (i.e. $6000^{\#}$ of silage, 60% moisture content, 40% DM or 2400 lbs. DM converts to 2759 lbs. of 13% moisture content, $2400/.87$).

Leased land - The same descriptions and calculations are utilized for leased land as that used with owned land with the exception that the actual lease expense is not recorded as they are in the financial data.

Land for Grazing and Raised Feed

Land used for the cow-calf enterprise should be summarized in the following forms. Remember to divide land into owned land, grazing and raised feed, and leased land, grazing and raised feed. Read the definitions carefully before filling out the forms.

FORM 3: LAND USE

OWNED LAND:

1. Grazing Acres--Cow-Calf Enterprise:

Type of Pasture or Crop	Total Acres	Cow-Calf Enterprise %	Lease Equiv. \$/Ac. ⁵	Lessor Costs \$/Ac. ⁶
a) Native Unimproved (Rangeland)	_____	_____	_____	_____
b) Native Improved	_____	_____	_____	_____
c) Improved Perennial	_____	_____	_____	_____
d) Annual Pasture or Forage Crop	_____	_____	_____	_____
e) Woodland (Grazeable Forestland)	_____	_____	_____	_____
f) Crop Aftermath	_____	_____	_____	_____
g) Totals ⁷ (a+b+c+d+e+f)	<input type="text"/>		<input type="text"/>	<input type="text"/>

Opportunity Cost Owned Grazing Land (net lease equivalent)⁸

OWNED LAND:

2. Raised Feed Acres:⁹

Type of Pasture or Crop	Total Acres	Cow-Calf Enterprise %	Lease Equiv. \$/Ac. ⁵	Lessor Costs \$/Ac. ⁶
a) Native Unimproved	_____	_____	_____	_____
b) Native Improved	_____	_____	_____	_____
c) Improved Perennial	_____	_____	_____	_____
d) Annual Pasture or Forage Crop	_____	_____	_____	_____
e) Crop Aftermath	_____	_____	_____	_____
f) Totals ⁷ (a+b+c+d+e)	<input type="text"/>		<input type="text"/>	<input type="text"/>

Opportunity Cost Owned Grazing Land (net lease equivalent)⁸

⁵ Lease equivalent is the annual rate that could be received if the owned grazing land were leased.
⁶ Lessor costs are expenses that would be incurred by the landowner (in the event that the land is leased), including property tax they normally pay and shared costs to maintain the land in suitable grazing condition. The amount and types of costs included here are dependent on the type of lease agreement that would be signed.
⁷ Total for lease equivalent and lessor cost (11g) is the sum of the \$/Acre figure times the acres used by the enterprise.
⁸ Opportunity cost owned grazing land (net lease equivalent) is the total lease equivalence minus the lessor cost.
⁹ Opportunity cost for owned raised feed land is accounted for in the market valuation of raised feed (item 15).

LEASED LAND:

3. Grazing Acres--Cow-Calf Enterprise:

Type of Pasture or Crop	Total Acres	Cow-Calf Enterprise %
a) Native Unimproved (Rangeland)		
b) Native Improved		
c) Improved Perennial		
d) Annual Pasture or Forage Crop		
e) Woodland (Grazeable Forestland)		
f) Crop Aftermath		
g) Totals $(a+b+c+d+e+f)$		

LEASED LAND:

4. Raised Feed Acres:

Type of Feed Raised	Total Acres	Cow-Calf Enterprise %
a) Native Unimproved		
b) Native Improved		
c) Improved Perennial		
d) Annual Pasture or Forage Crop		
e) Crop Aftermath		
f) Totals $(a+b+c+d+e)$		

Inventories – Cattle and Feed

Cattle Inventories

Cattle inventories must be recorded for both the beginning and ending of the fiscal year to complete the business balance sheets. Inventories must be divided into raised and purchased cattle for valuation purpose. The purchased breeding stocks are on the business depreciation schedule. In fact, this is an area that many ranches can benefit by updating. Cattle should be divided into the following categories – cows, herd bulls, and replacement heifers (before entering the exposed cow herd).

Cattle held for sale should be separated from breeding stock, as they represent a current asset. This could include cull cows, bulls, or replacement heifers and breeding animals being held for sale.

First time users of SPA may need assistance on the valuation issues.

Stored Feed Inventory

To properly adjust costs, the change in feed inventory from the beginning and ending of the year need to be known. Feed inventory is also a business asset. Forms 8 and 9 can be used to summarize feed inventories. Ideally, knowing both the cost and market value of feed is very useful. Most often the only available information is the market value. The SPA software will facilitate calculation of the feed cost.

Inventory Definitions

Raised breeding livestock - These are livestock produced by the business entity and not purchased.

Base value - A stipulated value that approximates the cost of raising the breeding animal. The base value is used to determine the cost basis value of the animal, and it is used to determine the amount of revenue to recognize from raising the breeding animal.

Market value - The net value, of all marketing costs, that would be expected if the livestock were sold on the date of the balance sheet.

Purchased breeding stock

Cost basis or book value - Purchase cost of the animal minus the accumulated depreciation.

Annual depreciation - The accounting procedure that allocates the purchase cost of breeding stock over its life.

Accumulated depreciation - The amount of depreciation taken on the breeding stock up to the date of the balance sheet.

Stored feed inventory - This is the amount and value of purchased and raised feed in inventory on the date of the balance sheet.

