On Farm Food Safety

Documents and protocols required for certification in:

Alberta Quality Starts Here, Verified Beef production,Canada Gold Beef, CFIA audits

How to Certify your Beef Cattle Operation

1. Attend a national beef on-farm food safety training workshop to learn about the requirements of the program.

2.When you return home, go through the Standard Operating Procedures (SOP) checklist in the producer Manual and complete each of the forms by filling in

a. The heading with your farm name, who completed the form, the date completed
b. The names of the persons responsible for implementing each of the SOP's e.g. Animal health, cattle feeding ….
c. Go through each of the SOP monitoring procedures and check off all of the boxes once you have that practice implemented in your beef operation. If the monitoring procedure is "not applicable" in your operation e.g. you don't feed any medications in the feed, then record "NA" in the column headed "List documents & records"
d. Go through the Deviation and Corrective Action column and check off the boxes where applicable, showing that you know what to do if a problem occurs
e. In the column headed "List documents & records", fill in the names of the respective documents that pertain to the monitoring procedures e.g. Processing protocol or Treatment protocol (Refer to the Producer Reference Manual to see how this is done)
f. Complete the Document and Record Reference by filling in

i. A Document and Record Reference # for all of your documents and records (see Producer Reference Manual on how this is done) and record the same # on your documented procedures.
ii. If you call a document a different name than listed on the column headed "title", write the name of your corresponding farm document in the column headed "Beef operation corresponding documents and records". For example, if you call your processing protocol a vaccination protocol, write that name in the column.
iii. For all "documented procedures", which are "how to procedures" e.g. processing protocol, treatment protocol (note: these are # a "D" or and "R" in the Producer Reference Guide to show you which ar records aned which are documented procedures), write down the most recent version date of the documented procedure (note: all documented procedures e.g. processing protocols, should have a date on them to show the most recent version of the procedure).
iv. In the column "document an drecord location" write down where the document can be found e.g. calving book, calendar, computer database ..
v. For those documents or records which are "not applicable" in your beef operation e.g. you don't use feed medications; thus vet feed prescription, medicationg ingredients PO … are NA, write NA in the column heading "Beefr operation corresponding documents and records"

3. Once you have the SOP implemented in your beef operation fully for 3 months in a feedlot and 6 months n a cow/calf operation, with supporting documented procedures and records, and you wish to get certified, call the ABQSH office at 403 329 6939 to set up a time for an on-farm audit.

Alberta On Farm Food Safety
Are you following the program?

		Documentation
Is there an affidavit on hand assuring no ..... ruminant-derived protein is used in your supplements?	Chapter 1	R-06
Are required Vet prescriptions on hand?	Chapter 1	D-06
Are medicated feed orders and purchases cross checked with ration formulas to ensure proper use?	Chapter 2	R-07
Are medicated feeds stored seperately and clearly labeled to avoid cross contamination?		
Is a running inventory of medicated feeds being maintained?.. **Not needed anylonger**	Chapter 2	R-09
Are storage areas kept clean to prevent contamination from chemicals and pests?		
Are procedures in place for receiving, processing/mixing and feeding to prevent drug residues?	Chapter 3	D-12
Has scale accuracy been verified and is documentation in place for validating scales accuracy within required range of weights? ..	Chapter 4	D-08
Have mixer tests been done and is documentation in place for conducting mixer performance test?	Chapter 5	D-10, R-11
Are ration formulas and mixing protocols in place? As well, are batch and mixing sheets used that documents target and actual addition of ingredients and delivery of feeds?	Chapter 3	D-07, D-11
Are flushing and sequencing procedures in place for handling medicated feeds?	Chapter 6	D-11
Nutritionist visit reports	Chapter 7	

From the On Farm Food Safety Reference Manual Sep 3, 2003

Document & Record Reference #	Title	Beef Operation Corresponding Documents and Records	Document Revision Dates (mm/dd/yr)	Document and Record Location
SOP-02 Cattle Feeding				
Ch.1 #1	**Prohibited Feed Affidavits**			
Ch. 1 #2	**Veterinary Feed Prescriptions**			
	Medicating ingredients/medicated feed purchase order			
	Feed mill truck delivery slip			
Ch. 3 #1	**Ration Formulations**			
	Feed Medication Inventory with Drug Usage Records			
Ch. 4	**Scales, metering devices, mixers equipment manuals**			
Ch. 4	**Scale and Metering Device Procedures and Records**			
Ch. 4	**Mixer Performance Testing Procedures, records including feed test results**			
Ch. 3 #2	**Feed Mixing Procedures (e.g. sequencing procedures) and records (e.g. batch sheets)**			
Ch. 6 #1	**Feed Medication Equipment Cleaning Procedures**			
	Feeding Procedures and Records (e.g. call sheets)			

From the On Farm Food Safety Reference Manual Sep 3, 2003

Cattle Feeding

1. Ruminant-derived (i.e. cattle, sheep, goat, deer) protein that is banned (prohibited materials) by CFIA (e.g. ruminant bone and meat meal) is not purchased and fed to cattle as per federal regulations. Feed suppliers of protein supplements provide a written assurance annually.

2. Feed storage areas are kept clean to prevent unsafe contamination by medications, pesticides, fertilizers, solvents, and manure.

3. Medicating ingredients and medicated feeds are stored separately, in a designated area, to prevent cross-contamination.

4. Feed that is species specific is stored separately and not fed to cattle (e.g. pig feed is not fed to cattle).

5. Medicating feed ingredients and medicated feeds are clearly labeled to avoid cross contamination.

6. If using medicated feed or medicated water, feeding pens are clearly and distinctly labeled to avoid medication mix-ups.

When using medicated feed, equipment such as scales and mixers are calibrated and maintained according to manufacturer's recommendations to ensure proper functioning and avoid medication cross-contamination. Scales and metering devices are verified for accuracy against a standardized weight/volume and are appropriate for the range of weights/volumes quantified. Scales and mixers are calibrated and verified for accuracy upon installation and at least once a year or after repair or modification. Mixer performance criteria and testing protocols, equipment specifications, maintenance and calibration schedules, test results and corrective actions are documented (ref: GPP for Controlling Feed Quality - Section 8, Animal Nutrition Association of Canada (ANAC) Good Manufacturing Practices Manual, CFIA Feed Medication Regulations).

If a watering line system is used to deliver medication, it is calibrated to ensure accurate dosing, and it is flushed with clean water after use and before next use to avoid contamination and drug carry over. Portable water troughs that are used to deliver water medication (e.g. sulfas) are removed from pens once treatment is completed, rinsed out and stored until next use.

All feed medication equipment, including that used for receiving, storage, further processing, mixing, conveying and distribution (including transportation vehicles) that comes in content with feed components during processing or in finished products shall be used in such a manner to prevent unsafe contamination of feed. This shall include one or more of the following: a) flushing, b) physical cleaning (vacuuming, sweeping, washing), c) sequential production and feeding, d) equipment is compartmentalized or separate, or e) other equally effective procedures. (ref: ANAC GMP - Appendix C, CFIA Feed Medication Regulations)

Medicated feed for reprocessing, returned products, and flushed material are clearly identified, stored, and used in a manner to prevent unsafe contamination of other feed stuffs. Medicated feeds for reprocessing are only used in feed products containing the same medicine. Flush materials are used only in compatible mixes. Materials with unusable or unknown mixtures of medications are

discarded.

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Nutritionist visit report

Date _____

Feeding protocols are being followed and available with batch sheets in feed truck as well as the AQSH binder

Required prescriptions are on hand

Medicated feeds are safely stored with bins identified

Signs are up and clear documenting delivery directions (including where to put delivery and feed tags) for each supplement. Delivery slips for each load of supplement is available.

Daily use of medicated supplement is being recorded

Storage facilities are safe and prevent contamination

Signed _____ Date _____

Chapter 1
Feed documents

this section should contain:

Annual prohibited feed affidavit from feed supplier

Feed tags (high light medications and levels)

Required veterinarian prescriptions

Proper feeding rates and withdrawal times for common medicated ingredients

	Trade Name	Claim	Cleared Feeding Level	Withdrawal
Monensin sodium	Rumnsin	Cocci at 22, feed efficiency at 33	22, 33 mg/kg	0
Lasalocid sodium	Bovatec	improved gain, efficiency and cocci	33 mg/kg	0
Salinomycin sodium	Posistac	improved feed efficiency	11-16 mg/kg	0
Melengestrol acetate	MGA	heat suppression in heifers	0.4 mg/hd/d	48 hrs
Tylosin phosphate	Tylan	reduce liver abscesses	11mg/kg	0
Chlortetracycline hydrochloride	Aereomycin	reduced footrot	0.22 mg/kg BW	5 d
Oxytetracycline	Terramycin	reduced bloat	75 mg/hd/d	5 d
Chlortetracycline and Sulfamethazine	AS700	maintenance of gain and FE	77 mg/hd	10 d
Fenbendazole	Safe-Guard	removal of GI worms	5 mg/kg BW	13 d

Use of these medications at different feeding rates is off label use and requires a vets prescription.

Chapter 2
Medicated Feed Inventories

This section should contain:

Documentation for receiving medicated ingredients.

Documentation for tracking orders and delivery of medications and medicated supplements.

Protocols for reconciling medications and medicated supplements with use.

Receiving medicated supplements

Signs must be up clearly documenting where each supplement should go (bin numbers). As well, directions should be given on where delivery slips should be placed when supplement is delivered.

Management must confirm that each load of delivered feed (supplement) is what was ordered and what is used in ration formulas. If it is not, return the feed.

When feed is delivered to the feedlot, trucker is to leave a feed invoice and feed tag in the designated location. Trucker must specify on invoice or tag where feed was dropped off (i.e. bin number). Insist to the feed company this is done. Complain to them if it is not.

Reconcile medicated supplement received against supplement use

(No longer required)

1) Use two supplement bins. When supplement is received from the feed company, it should go into an empty bin. Record how many pounds of supplement go into the bin as well as how many lbs go out (using daily reports of actual supplement use). Enter these daily values into a spreadsheet. Draw from only one bin until that bin is totally empty so exact inventories are known each time bins are emptied. Approximately one month later, after a bin is completely emptied, determine the total lbs of supplement delivered into the bins and compare this to the total lbs of supplement used according to Tyrel reports.

2) Record actual weight of medicated supplement used in each load of feed mixed. Record these numbers into a spreadsheet. Compare this total to the theoretical total provided by the feedlot accounting program (Hi-Plains; based on ration formula and total amount of each ration fed)

There should be a separate spreadsheet for each medicated supplement used.

Use of concentrated medications (that are in bags) should also be recorded in a spreadsheet and/or schedule 1B each day that they are used.

Corrective measures

If there is greater than 10% discrepancy between these two values:

1st: Double and triple check accuracy of inventory measurements and use of medicated feed.
2nd. Review order and delivery slips for each load of medicated feed that was purchased and ensure medications were put in proper bins.
3rd. Ask the feedmill where supplements are purchased to help in tracking down where error could have occured.
4th. Confirm that medicated feed is not being fed to cattle that will be slaughtered within the required withdrawal period for that medication.
5th. Check scale accuracy

Chapter 3
Mixing rations

This section should contain:

Protocols for mixing rations.

Documents validating mixer performance.

Ration formulas.

Ration mix sheets.

For feedlots that do not use a recording device in the feed truck, copies of mix sheets and feed sheets should also be included.

Mixing rations

From CFIA

1. The mixing protocol must be defined

This protocol must specify the following, as a minimum:

- sequence of ingredient addition to the mixer
- mixing time
- batch size

Darryl's suggestions:

Ingredients should be added in ascending order of quantity but with supplement added second.

For example, for a backgrounding ration, grain would be added first followed by supplement. Let the mixer run for at least 30 seconds before adding forage and let it run while you add the forage.

For a finishing ration, add silage (forage) first followed by supplement. Mix forage and supplement for a minimum of 30 seconds before grain is added.

Alternative protocols can be used as long as:

Supplement is always added second and supplement is allowed to mix with the first ingredient for at least 1 minute prior to addition of remaining ingredients.

and

Following addition of the last ingredient, the mixer should revolves at least 20 times. This is approximately equal to 5 minutes with the truck idling at 1500 RPM.

Deviations from these recommendations must be validated with a mixability test.

Ingredient addition to, and ration delivery from the feed box must be recorded. For feedlots that use a device that records this information(i.e. tyrel, mix weigh, omni 504a), information from these devices are adequate documentation of mixing and feeding accuracy. A member of management should look at print out at the end of each day and sign off confirming accuracy.

For feedlots that do not use these, rations should be made using mix sheets and recorded on load sheets (i.e. schedule 3a). Feed delivery should be recorded on feed sheets that record feeding accuracy (i.e. schedule 3b).

When mixing a load of feed, tolerable error will depend on the inclusion level of the ingredient. For major ingredients, (i.e. > 20% inclusion rate), feeds should be added to within 1% of target. Increased tolerance is required for ingredients with lower inclusion rates due to scale gradations and difficulty in dispensing small quantities. A tolerance of , ingredients with low inclusion rates (i.e. < 20%) should be added to within 5% of target.

If you go over the acceptable maximum on a medicated ingredient, get in the box and remove the appropriate amount.

Chapter 4
Scale accuracy and validation

This section should contain:

location of manuals for scale indicators.

Protocol and required forms for testing sensitivity, graduation, accuracy, and capacity of scales that weigh medicated feeds.

Protocol and required forms for testintg sensitivity, graduation, accuracy, capacity, and accuracy of scales that weigh concentrated medications (i.e. gram scale).

Scale maintenance, calibration, and accuracy,

Instruction manual for scale indicators are located at:

Testing for scale accuracy requires at least 10 test weights weighing approximately 50 lbs each and 10 test weights weighing 2 lb each for testing scale sensitivity and graduation.

At installation, and following any repairs, and no less than once per year, scales must be calibrated against standardized weights to document:

Sensitivity - the smallest weight that will cause the scale indicator to move. A series of 1 lb standard weights should be added until the scale indicator registers a weight change. Truck mixers should have a sensitivity of 10 pounds. Document verification in schedule 4a

Graduation - smallest incremental weight change on the scale. Truck mixers should have a graduation of 10 pounds. Document in schedule 4a.

Accuracy - How accurately the scale weighs feed. At least monthly, compare weight according to mixer scale against the weight based on a certified drive-on scale. Document results in schedule 4b. Confirm accuracy using a full load. Accuracy should be within 2% of capacity (i.e. 240 lbs for 14,000 lb load).

Capacity - The greatest weight that can be weighed within the mixer volume. This should be based on manufacturers guidelines or determined based on maximum size load of finishing ration that can be made that results in no spill-over while mixing and results in an acceptable CV (15%) in mixability tests. This verification can be done simultaneously with mixability tests. Maximum capacity of each truck mixer should be clearly documented in the cab of each feed truck. Document verification in schedule 5.

Accuracy within a weight range - At least annually, confirm accuracy within the weight range in which supplement is added (<1000 lbs). When truck is at about ½ capacity, put platform on feed box (2 2x6 across box with plywood or pallet on top). Record total weight. Add 50 lb weights 1 at a time and record weight. Continue until 10 weights are added. Repeat this procedure when truck is about 2/3 capacity. Document in schedule 4c.

If any of the these measurements are out of tolerance by more than 20%, redo the measurement and confirm. If it is still out, call a certified scale technician (i.e. southern scale) to help identify source of error.

Keep records in this chapter

Scale sensitivity (how much weight does it take to cause a change in the scale indicator). Test weights should be small enough that more than 3 are required to register a change.

Date _____
Mixer type _____
Scale description _____

Initial Weight	Weight of Test weight	heoretical Weight	Actual Weight	Deviation

Schedule 4b - Scale accuracy (how accurately does the truck weigh a full load of feed).

Truck description

Date	A mpty truck weight ive on scale)	B os of feed added ruck scale)	C Full truck weight ive on scale)	D eight added (C-A)	ccuracy 3 /(C- A)

Drive on scale should be certified (legal for trade)

Schedule 4c - Scale accuracy (is scale accurately registering changes as weight is added)

Date _____
Scale description _____
Scale serial number _____
Location of scale documents _____

Current weight	weight of test weight	new weight

Chapter 5
Mixer performance testing

This section should contain:

Protocols for conducting mixability tests

Required forms for conducting mixability tests

Mixer performance test

Mix a full load of finishing ration following the prescribed procedures documented in chapter 3. Obtain at least 9 samples of at least 300 g each as feed is being discharged from the truck. Samples should be obtained near the beginning, middle, and end of the load.

Nutrients that are provided in disproportionately high levels in a feed can be used as markers to give an indication of how well that feed is mixed in the load. For example, grains contain about 0.05% calcium, so levels would be very low in a finishing diet. Finishing supplements are typically 12% calcium or higher. Measuring calcium levels in a finishing ration provides a good indication of how well supplements are mixed. Similarly, fibre and moisture are disproportionately higher in silage than other feeds and can provide an indication of how well silage is mixed.

Corn is approximately the same particle size as supplement, so in barley based diets, it can be used as a marker to indicate how well supplement is being mixed. Simply count corn kernels in each sample to get an idea of how uniformly it is mixed. If using corn, add approximately the same quantity of corn as supplement to the ration. This corn should replace an equal amount of barley in the mix.

Verify mixability by documenting tests in schedule 5. Keep mixability tests in this chapter.

Coefficients of variation should be no more than 20% for complete rations.

If CVs are higher than 20%, reconsider mixing protocols and maximum load sizes and repeat verification procedure until CVs are under 20%

Schedule 5 - Mixability test

Date _____ Mixer description

Ration (quantity of each ingredient)

Mixed during ingredient addition? _____ Total mixing time (min)

Pens fed with load:

Sampling

Pen	Sample	Total Weight on truck	Weight of sample	Marker weight	Concentration of marker
	1				
	2				
	3				
	1				
	2				
	3				
	1				
	2				
	3				

Mean concentration of marker _____.
SD of marker concentration
CV of marker concentration

Chapter 6
Flushing and sequencing to avoid cross-contamination

This section should contain documented procedures for flushing and sequencing to ensure no cross contamination of medicated feeds.

Required forms for documenting validation of flushing procedures.

Flushing and sequencing procedures to minimize cross contamination

Flushing and sequencing is only required with use of medications that have a required withdrawal period prior to slaughter

Handling facilities

Ideal

Medicated ingredients do not come in contact with facilities (i.e. legs and augers) that handle non-medicated ingredients.

Adequate

The facility must be flushed following flow of medicated feed through the facility. At least ½ tonne of rolled grain must go through the equipment and stored in a separate, clearly marked container. This flush material can be used only in rations containing the medicated feed. Verify that the flushing procedure is adequate using schedule 6a. As well, schedule 6b must be filled out following handling of all medicated ingredients.

Validate by putting rumensin supplement through facilities followed by a flush. Check the next feed that goes through the facilities for rumensin by grinding a sample and checking for rumensin using Elancos protocol.

Feed truck

Following delivery of medicated feed, the subsequent full load (minimum) must be delivered to cattle that will not be slaughtered within the withdrawal time for that medication. Confirm adequacy of this protocol by testing for presence of the marker in the medication following delivery of the load of feed. Both rumensin and Aureo S 700 contain a marker that will show up on filter paper if present in the feed. Most feed companies have the equipment to do this test

Loader

If the front-end loader is used for loading medicated feeds, clean the loader of any medication by sequencing. Following the addition of the medicated ingredient, load silage with the loader. This silage (load) should be fed to cattle that will not be slaughtered within the withdrawal period for that medication.

Schedule 6a - Validation of flushing procedure for handling facilities

Date	g of flush material collected	medication tested	level in medicated feed	level in flush material

Schedule 6b - Flushing of feed handling facilities

Date	medicated feed handled	lbs of rolled grain flushed