



**POUND-MAKER**

**2002 Feedlot Environmental Stewardship Award  
Information Package**

## Corporate Information

Pound-Maker Feeders Ltd. started in 1970 when a 2,500 head feedlot was built seven miles east of Lanigan on the north west quarter of Section 24, Township 33, Range 21, West of the 2<sup>nd</sup> meridian. At this time, 50 local area farmers owned Pound-Maker.

Expansion occurred in the mid-70's and mid-80's for an increase in capacity to 8,500 head.

In 1991, Pound-Maker built pens on the north east quarter of Section 23, Township 33, Range 21 West of the 2<sup>nd</sup> meridian for a total capacity at that time of 18,500 head. Pound-Maker Investments Ltd. was now the entity in which the local shareholders had ownership. The 50 local shareholders grew to over 200. Currently, Pound-Maker Investments owns 100% of Pound-Maker Agventures Ltd.

Expansion continued in 1994 and 1998 on the north west quarter of Section 23, for a one-time capacity today of 28,500 head. During the 2001 year, Pound-Maker shipped 53,155 head of cattle that consumed 71,929 tonnes of grain and 24,969 tonnes of forage and silage.

As well as operating the feedlot, Pound-Maker Agventures Ltd. also operates a fuel ethanol facility, which produces water free alcohol from renewable grain sources. Ethanol is a high, octane additive and when blended with gasoline, reduces

carbon monoxide emissions up to 30%. In addition, ethanol production results in a net reduction of carbon dioxide resulting in a reduction of greenhouse gases in the environment.

Pound-Maker is the only fully integrated fuel ethanol feedlot facility in Canada and has developed technology unique throughout the world in the delivery and feeding of byproducts to feedlot cattle. In doing so, Pound-Maker has eliminated the need to dry these by-products therefore, significantly reducing natural gas consumption allowing Pound-Maker to be one of the most energy efficient plants in the world.

In 1992, Pound-Maker was recognized for its environmental contributions by being awarded the Saskatchewan Chamber of Commerce Award in Business Excellence for Environmental Leadership and Investment.



**Figure 1 Main Office**



**Figure 2 D Wing**



**Figure 3 Ethanol Plant**



**Figure 4 ABEX Award**

Over the last decade, Pound-Maker has hosted dozens of international tours and thousands of people demonstrating its integration as well as its community ownership structure.

Brad Wildeman is the President of Pound-Maker. The mailing address is P.O. Box 519, Lanigan, Saskatchewan, S0K 2M0. The phone number is 306-365-4281 and the fax number is 306-365-4283.

## Manure Management Practices

Pound-Maker owns the three-quarters of land on which the feedlot pens and the ethanol plant are located. Therefore manure disposal is done on land not owned by Pound-Maker. Because Pound-Maker does not own the land, Pound-Maker is not involved in soil analysis, crop nutrient requirements and cropping history.

The landowner expresses an interest in receiving manure, either in the spring or the fall of the year. Pound-Maker has maintained delivery records for the last ten years. The date of application, number of loads, and the trucks used to deliver the manure is recorded. Periodic testing of the weight of the manure loaded onto the manure trucks occurs in an effort to get a tonnage delivered to each piece of land. Pound-Maker supplies the manure for the application rate required by the landowner. The landowner is responsible for the incorporation of the manure.

Pound-Maker manages the manure in the pens by creating stockpiles of manure. This is done in an effort to keep the pens as free of manure as possible and allows for decomposition of manure in the piles before being spread onto the land.

In the spring of 2001, Pound-Maker purchased a compost machine to evaluate the cost and benefit of on site composting. The effect on the nutrient composition of raw manure versus composted manure was also studied. Initial trial results show a reduction of volume of near 70%, which will significantly decrease the amount of manure required to dispose of. Results also show a change in nutrient value of the manure (see below).

Nutrient (%)	Raw Manure (Dry)	Compost Manure (Dry)	Change in nutrient value	% Change in nutrient value
Total N	1.09%	1.80%	0.71%	64.96%
Total P	0.39%	0.84%	0.45%	113.62%
Total K	1.24%	1.17%	-0.07%	-5.63%
Total S	0.42%	0.41%	-0.02%	-4.51%



**Figure 5 Loading pile of manure in pen**



**Figure 6 Manure Spreader Truck**



**Figure 7 Compost Machine**

During the trial, trucks were weighed with raw manure and with compost manure. The reduction in the weight of the manure will significantly reduce road maintenance and compaction in the fields.

As part of the evaluation, during the fall of 2001, one-half of a quarter of land was spread with raw manure from the pens with the other half spread with composted manure. Soil tests were taken from both areas of the quarter prior to delivery and will be taken in the future to determine soil nutrient analysis over time. As well, cropping history will be recorded to see the influence of raw manure versus compost manure.

Pound-Maker has voluntarily entered into an agreement with the Rural Municipality of Prairie Rose No. 309 to help offset the cost of maintaining the roads around the feedlot. As well, during manure hauling season, Pound-Maker maintains the roads daily to minimize the effect of the hauling.

Dust within the pens is not a problem due to our local weather and precipitation patterns, but the feed alleys can periodically be sprayed with water in an effort to control road dust.

## Water Management Practices

Prior to construction of the feedlot and ethanol plant in 1991, Pound-Maker initiated a full hydro-geological study by an international environmental consulting firm (Goulder and Associates) (results available upon request).

Pound-Maker's water source consists of three deep wells, each capable of 200 gallons per minute. These deep wells are used for ethanol production and water consumption for feedlot cattle. There is a shallow well used primarily for ethanol operations. Also on site is a dugout used for fire protection and emergency watering supply.

In addition to feedlot environmental compliance, Pound-Maker is required to meet a more stringent set of regulations for the ethanol facility.

Initial monitoring of water at the Pound-Maker site started in 1991 at the recommendation of Saskatchewan Environment and Resource Management. Pound-Maker monitors ground water through a system of pezometers across the site. The water samples taken semi-annually from these pezometers are sent away for analysis, monitored, and logged for future reference. Over the last 10 years there has been no contraventions to any of the regulations.

Further to the requirements of the operation of the industrial evaporation cell, Pound-Maker initiated testing of a cross section of monitor wells across the property on an annual basis to ensure that there is no ground water contamination from the feedlot. Pound-Maker annually analyzes for nitrates, total and fecal coliforms.



**Figure 8 Pond for fire protection**



**Figure 9 Pezometers near evaporation pond**



**Figure 10 Inside pezometer**

Pound-Maker also monitors an off site municipal water well and has worked with the Rural Municipality of Prairie Rose No. 309 in maintaining the well.

Pound-Maker has a rental agreement with a local farmer for 30 acres of land and has developed a water containment area. This serves to recharge Pound-Maker's shallow well as well as the municipal well, and also provides an conservation area for upland fowl nesting.

In the spring of 2002, the Rural Municipality of Prairie Rose #309 saw a shortage of water in the shallow wells located on the north end of the RM. Pound-Maker has provided a system, free of charge, for local farmers to access water for spraying from a deep well on site until the water shortage in the shallow wells is alleviated.

## **Herd Health Management Practices**

Everyone working with the cattle understands that it is their responsibility to prevent any unnecessary suffering to the animals. In consultation with Animal Management Services, Pound-Maker has developed standard operating procedures for processing and treatment of all cattle (available upon request). These protocols keep in mind the welfare of the animal and low stress handling procedures are used at all times.

In a new initiative to improve efficiency in feedlot performance, Pound-Maker has recently started individually weighing cattle into the feedlot. This protocol has provided an accurate measurement of weight into the lot to ensure that all animals in the lot are within the established weight range. By doing this, Pound-Maker can accurately administer the incoming vaccinations to ensure that the animals are receiving correct dosage by weight. As well, the lot of cattle will have a more efficient feed conversion as the feed protocol will be established for cattle with a 75 pound weight range, rather than for a lot of cattle that may have a 150 pound range.

Pound-Maker has also carried the individual animal management one step further by individually weighing cattle out of the feedlot. This is done on lots of cattle in which there is retained ownership, or where the lot includes animals in which Pound-Maker has purchased direct from producers. The weight data, both incoming and outgoing, is compiled with carcass and grading data received from the packer. Analysis on an individual basis, with reference to the producer tag or the CCIA tag, is provided to the producer for his use in the management of his herd.

Animals that require medication are analyzed by licensed animal health technicians and treated with the proper medication for the affected ailment. The sick animals are handled as gently and efficiently as possible and are held separately in sick pens to allow for less competition at the feed bunk and water bowl. Cattle that suffer from lameness ailments such as arthritis, but do not require daily treatments are also held in small isolation pens in where there is less competition.



**Figure 11 Treated animal with notch out of ear tag**

Cattle are brought into the treatment area daily, temperature is checked and medication is given if required. If the animal has responded to the treatment, the animal will be sent back to the pen it came from. Care is taken to minimize the time the sick animal is away from feed or water. The sick animal is identified to all by a notch cut out of its ear tag.

Cattle health records are recorded each time an animal is treated. The animal health technicians use a computerized animal health system at chute side. This system tracks incoming lot information such as vaccination products and implant; ailment information by individual lot and tag number, date, ailment, temperature, weight, from pen, to pen, drug, dosage, pulled by, treated by and comments; and death information, including post-mortem cause of death. Historical treatment on any animal can be accessed to determine which drug protocol should be used at the time. Historical information is also used to analyze drug response.



**Figure 12**  
**Computerized health system**

Strict adherence to withdrawal times set out by the veterinarian must be followed at all times. Animals waiting to be shipped as soon as their drug withdrawal times are up receive a white ear tag indicating clearly the shippable date. This ear tag is given to the animal on the last day of treatment. When a weight is entered into the animal health system, a flag comes up on the screen to warn the animal health technician that withdrawal time may be an issue. A report is also generated which shows the treatment for the last 45 days for any lot. This report is generated before shipment and provided to the cattle manager to ensure withdrawal times are followed.

All pharmaceutical products are used at label directions. Medications are kept under appropriate conditions during both storage and use. Scales are installed in the treatment chute. The correct dosage for the weight of animal and the proper route are always maintained.



**Figure 13 Blue Box for recycling of used medical**

Used medication bottles are discarded into a “Blue Box” to be picked up by a regional waste recycling co-operative, which will dispose of the glass waste under their regulations.

Any used needles and scalpel blades are discarded to a sharps container, which will be removed to steel remanufacture company (Ipsco, Regina, Saskatchewan) when it becomes full. Using good quality needles with aluminum hubs and proper animal restraint prevents broken needles. Needles are changed frequently.

Pound-Maker has also developed a standard operating procedure for the feed division (available upon request), which outlines the flushing and sequencing of feed medications to ensure that withdrawal times are met. Contingency plans are set out to ensure the proper handling of misallocated supplement, either in the mill storage bins or in the feed bunk.



**Figure 14 Barn and chutes**

All handling facilities are set up in such a way as to provide the lowest stress to the animal as possible. All pens are bedded with straw regularly during the winter months in an effort to keep the animals comfortable and dry. Treatment chutes are well maintained so as to properly restrain the animal for

treatment. Pen checkers use well trained horses to help in removing the sick animal from the healthy animal in the quietest and most efficient way possible. When moving large groups of animals, employees handling the cattle use methods that allow the cattle to move under their natural instincts. Barn and loading facilities have been designed with animal safety and welfare in mind.

Distressed cattle are dealt with humanely, effectively, and promptly to prevent avoidable suffering. In consultation with the veterinarian, if an animal is deemed to not recover from the ailment afflicting it, it may be shipped for salvage or euthanized. At no time will any injured or disabled animal be transported. Euthanasia is done only when all other avenues of treatment are found not to provide any relief to the animal. Only trained personnel following protocol set out by the veterinarian perform euthanasia.

Dead stock is placed at sites designated for dead animals, which are discreetly located. There is a log in which all animals taken to the dead pit are recorded. The CCIA tag numbers of the dead animals are recorded and provided to Saskatoon Processing so they can be reported to CCIA. The veterinarian accounts for all animals at the dead pit as about 95% of the animals receive a post-mortem. Office staff reconciles the log to the death reports provided by the veterinarian. Dead stock is picked up regularly (once or twice a week) by a rendering company (Saskatoon Processing, Saskatoon, Saskatchewan) for rendering and disposal.

## Feedlot Design

Pound-Maker originated in 1969 with a 2,500-head feedlot called the A-wing. In the mid-70's, the B-wing was developed with the C-wing coming into existence in the mid-80's. These pens have a capacity ranging from 80 head to 200 head. There is a drainage ditch along the back alleys in which runoff from the pens moves into evaporation cells.



**Figure 15 Old lot - A, B, C wings**

In 1990, the D and E-wings were built (designed by Associated Engineering). These wings have 16 pens of identical size and shape. The pens were designed to promote the health, well-being and good performance of the animals at all stages of their feeding period. These pens are 250 feet long by 250 feet wide. Current capacity in the pens is 325 head. Care to not put too many animals in a pen is given at all times. These pens have a pen density of 200 square feet per head and a bunk space of 9 inches per head. At each visit, consulting nutritionist, Bruce Creighton of Bearspaw Nutrition Consulting Inc., provides a pen density and bunk density report (available upon request).

These pens are built on a 3% slope. The pens have an earthen-based bottom with a dry, elevated resting area for the cattle. There is an 8-foot cement bunk pad. The bunks are a continuous pour cement bunk. There is a water bowl in each fence line that is shared between pens. The fence provides windbreaks to reduce wind speed and the wind-chill effect on the cattle. The fence is made of wooden 10-foot slabs based on 20% porosity that provides 100 feet of wind protection. There is a gate in the back of the fence used to access the back



**Figure 16 New lot pens with 3% slope**

alley. The back alley runs along the wing and is used for cattle movement, either to the sorting barn or to the treatment area. In 1994 the F-wing was constructed and in 1998 the G-wing was completed. These wings are identical to the D and E-wings.

Containment cells are found outside of each wing. These clay lined containment cells were designed, constructed and approved by a licensed engineering firm (Associated Engineering Ltd.). The design specifications are available upon request. The containment cells have a compacted soil base and hold natural runoff plus one meter of free board. The design exceeds the requirements presently in place for feedlot construction in Saskatchewan.



**Figure 17 Back alley and containment cell**

In addition, Pound-Maker also has an evaporation pond for boiler blowdown from the ethanol production facility. This serves as an excellent nesting area for upland fowl.

As stated above, Pound-Maker monitors ground water through a system of pezometers throughout the site. A minimum of one dozen pezometers were designed and inspected by Associated Engineers. The water samples from these pezometers are sent away for analysis and logged for future reference.



**Figure 18 Evaporation pond**

## **Contributions to the Industry**

Over the past several years, Pound-Maker has been involved in many livestock organizations including the Canadian Cattlemen's Association, Saskatchewan Cattle Feeders Association, and the Saskatchewan Stockgrowers Association. In addition, Pound-Maker sits on the Board of Directors of the Canadian Cattle Identification Agency, the Veterinary Infectious Disease Organization, Advisory Board to the Beef Chair, University of Saskatchewan, Action Committee on the Rural Economy, and until recently the Agricultural Development Fund of Saskatchewan. Pound-Maker has also volunteered its facilities for several training sessions for feedlot workers, and has partnered with various institutions for research, training and program development such as the University of Saskatchewan, the Canadian Cattlemen's Association, Quality Starts Here, Agriculture in the Classroom, and provincial and federal governments. Recently, Pound-Maker was the Agribusiness Leader of the Year by the Saskatoon Chamber of Commerce.

Throughout the year, Pound-Maker has been asked to speak to meetings throughout Saskatchewan and Canada about the feedlot industry. It is estimated that Pound-Maker speaks at a minimum of 20 meetings per year to a wide audience of interested groups including those in urban areas. Pound-Maker has hosted several international and national visitors interested in ethanol and feedlot production, design and efficiency. 4-H groups, feeder associations and educational groups (kindergarten to University classes) tour Pound-Maker annually to see the operations first hand. Pound-Maker tours several hundred visitors every year.

Pound-Maker is committed to the safety of its employees while allowing them opportunities to access continuing education opportunities. Pound-Maker has had a structured Health and Safety Committee for the past 10 years, comprising both management and employees who meet quarterly to review our safety program and develop enhancements. Safety awards are given out Pound-Maker Agventures Ltd.

annually to those areas that have been accident free. All new employees are trained in WHIMIS during the first three months of employment. Pound-Maker also provides opportunities to its employees to further their knowledge of the cattle industry. Pound-Maker provides financial assistance for the animal health technicians on staff to attend functions in which their status in their association is maintained. As well, other staff members attend functions such as the Western Feedlot School to interact with people in the feedlot industry. Pound-Maker participates in the apprenticeship program in place to allow its employees to gain journeyman status in the approved trades. Presently, two employees are completing their apprenticeship. In addition, when an employee finds a training opportunity that could enhance his job performance, or enhances his ability to advance his career, Pound-Maker will pay the cost of the tuition, to allow the employee to participate without undue financial burden.

Pound-Maker has conducted several research trials in which production efficiencies have been realized. Many of the trials initiated and completed at Pound-Maker have been done in collaboration with the University of Saskatchewan. Research areas have included such issues as novel ration development to utilize the by-products of ethanol production in both feedlot and grazing situations; limit feeding to increase feed efficiency and reduce manure production; the use of manure to revitalize native grasslands (Western Beef Development Center); comparing the nutritive value of cattle and hog manure (Prairie Agriculture Machinery Institute). Through this collaboration with the University, this research has given the opportunity for several students to obtain their Master of Science degree in Agriculture.

Limit feeding trials have been successful at Pound-Maker and current feeding practices implement a limit feed philosophy. Most recently, trials have also been done to compare the performance of cattle being fed a higher grain to forage ration to reduce manure production. Production performance of the animals have been higher than the control groups in both the limit feed trials as well as the high grain trials. Currently, Pound-Maker is conducting a trial on the economics of composting our manure to reduce volumes, decrease odor and improve quality of the product to the farmers.

Good management practices and stewardship and the implementation of the results of the many trials completed at Pound-Maker, have positively affected profitability by reducing the amount of feed consumed by the cattle and the volume of manure produced by the cattle, which lowers Pound-Maker's cost of production. Although these numbers are hard to quantify, they have potential to be very significant. For example, a 5% reduction in feed cost could result in a \$400,000 savings and a 40% reduction in manure could save \$150,000 in manure handling costs.

Pound-Maker has been involved in an information trace back program in conjunction with Western Beef Development Center and private cow calf producers. All information gathered throughout the feeding program, as well as carcass information is given back to the producer to provide him with the performance of his cattle for management decisions.

Pound-Maker is involved in the Quality Starts Here program initiated by the CCA as one of the pilot sites to implement a certification program for quality operating procedures that can be replicated throughout the industry. While the CCA is still developing the criteria for the significant measuring points that will be used to certify feedlots and ranches, Pound-Maker has developed Standard Operating Procedures for Pound-Maker employees and have also given a

copy to the Quality Starts Here committee to distribute to those operations who desire to develop a written document which will likely be a requirement for QSH certification.

Pound-Maker has also volunteered to become a site for the pilot study conducted by the Canadian Food Inspection Agency to develop appropriate procedures and regulations for on-farm and feedlot milling as it regards feed medications. Through this pilot, Pound-Maker has produced Standard Operating Procedures, which has been given to the Quality Starts Here committee to distribute to other feedlots that need to develop a written medicated feed procedure.

Pound-Maker is proud to be a leader in the livestock industry. Pound-Maker's mission statement reads as follows: **“To be an industry leader in the profitable value added processing of agricultural products in an ethical and environmentally sustainable manner for the benefit of stakeholders”**. Only through the commitment of our shareholders and our employees can we meet our mission. Our consideration of the sustainability of our environmental practices is paramount to allowing us to continue to create value for our shareholders and well paying jobs for our employees. Our ownership structure comprised of community residents, demands we conduct ourselves in the highest ethical and environmental way possible. The opportunity to be recognized for our efforts would provide these stakeholders with a visible acknowledgement for a task well done. For this reason, we have applied for this award, and look forward to your response. We realize however there are many feedlot companies who view the environment as a serious matter worth addressing, and appreciate the difficulty in finding one more deserving than the other. We thank those involved for the opportunity to apply.