

QuietWean Nose Flaps: An Exportation Product to Nepal

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Agriculture in Nepal:

Nepal is a country located in South Central Asia, between India and China. It is one of the poorest countries in the world although, it is the home to approximately 30 million people. The average daily income is 100 rupees which amounts to only \$1.26 Canadian dollars. Forty six percent of the population is unemployed, but seventy six percent of those who are employed are working in the industry of Agriculture. Within Nepal there are three zones of farming; the Terai Region, the Hill Region, and the Mountain Region (Lavé, & Avouac, 2000). The Terai Region takes up only seventeen percent of the total land area in Nepal. The soil in this region is moist and used to farm many crops including; tobacco, maize, wheat, sugarcane, and more. Agro-based industries are fixed in this region. The Hill Region is near the center of the country, at which there is a high altitude. The high altitude is the reason for the moderate climate allowing rice, maize, millet and soybeans to be cultivated here, along with the production of fruits and vegetables. In addition to crops, domestic animals, such as bison, cattle and sheep are also raised (Degen, Kam, Pandey, Upreti, Pandey, & Regmi, 2007). Multiple industries have established in this region including shoes, alcohol, tiles, cement work, to name a few. Trade is also a high source of income as Kathmandu, the nation's capital, is in the Hill Region making it the hub for trade and business. The Mountain Region is greater than four thousand meters above sea level, making it located more Northern compares to the Hill Region. Mount Everest is part of the Mountain Region along with the seven other of the world's highest peaks. Agriculture is essential to maintain and grow the country's economic status, although very low right now with potential imports from other countries the status of the country can prosper and grow (Pudasaini, 1983).

Product information:

QuietWean nose flaps are made from a lightweight plastic and are placed in the nostrils of calves to aid in the weaning process (QuietWean, 2016). Weaning is the process of which one is removed form something that they have



(QuietWean, 2016)

become dependent upon (Lee, 1996). The non-invasive nose flap disables the ability of nursing for calves while still enabling physical and social interactions with their mothers. The flap does not inhibit the animal's ability to eat solid food. The nose flaps are quick and easy to apply when calves are sorted into a chute for handling. In the chute the flap is placed into the septum of the nose without making a hole. After application, the flap stays in the nostrils of the calf for 4-7 days. During this time the calves remain in the same pasture as their mothers. After the wearing period, the calves are sorted out from the herd and re-enter the chute where the flaps are removed. After removal, the cows and calves are released into separate neighboring pastures. The insertion and the removal of the nose flap creates a two-step weaning method, implemented by QuietWean (QuietWean, 2016).

Effectiveness of the nose flaps:

In a study comparing two methods of weaning it was proven that the two-step method reduced stress within the calves being observed (Loberg, Hernandez, Thierfelder, Jensen, Berg & Lidfors, 2008). To truly determine the benefits of the weaning process, using the two-step method, the researchers divided the calves into two different groups. The first group was abruptly weaned which involved them being removed from their mothers and placed in a new pen with group of five other calves. The second group was placed on the two-step program, where these calves were fitted with a nose flap and remained in the same pen as their mothers. Over the course of the study it was brought to light that the calves on the two-step weaning program experienced less stress during the process of weaning (Loberg et al., 2008).

Weaning impact with nose flaps on:

Heartrate:

At the beginning of the study, before the fitting of the flap or partition of the cow calf pairs, the calves' heart rates from each group were recorded in beats per minute (bpm), (Loberg et al., 2008). Over the duration of the study the two-step calves had a lower heartrate than those abruptly weaned, as seen below in Figure 1.

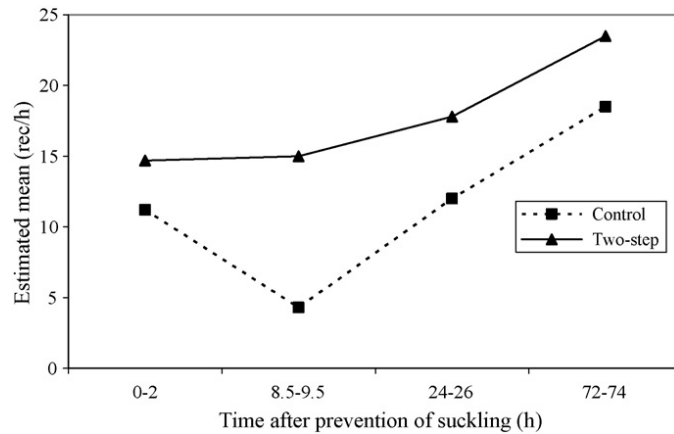


Figure 1. Shows the trend in the heartrate after prevention of suckling. The two-step calves have a higher heart rate but it remains relatively steady in comparison to those that are in the control group (Loberg et al., 2008).

Overall observations demonstrated that, “the two-step calves had a mean heart rate of 104.2 bpm and the control calves had a mean heart rate of 113.4 bpm,” (Loberg et al., 2008, p. 229). This shows that when heartrate was observed the calves under the least amount of stress were those in the two-step group (Loberg et al., 2008). A lower heart rate is ideal for these calves during their time of weaning, because a lower heart rate demonstrates less stress being felt by the animal. The heartrate was higher in the twostep calves but remained at the steady high rate which is not as alarming as a fluctuating heart.

Weight:

Calves in the control group showed a higher average daily weight gain over the length of the study (Loberg et al., 2008). Although, after separation the two-step weaned animals resulted with a higher daily average weight gain. Up to, “95% more weight gain [was seen] during the first two weeks after post weaning,” (Rood, 2011, p. 2). The duration that the two-step calves were with their mothers, but not suckling, is seen to encourage the calves to eat more solid food making up for the milk that was no longer in their diets (Loberg et al., 2008).

Behaviour:

The overall behaviour of the two-step weaned group was positive (Loberg et al., 2008). The animals understudy vocalized and walked less than the calves within the controlled treatment, as depicted in Figure 2. This is positive because vocalization and walking are signs that the animals are under stress, which often comes with weaning. When observing the animals

and these behaviours less it shows that the animals in the two-stage program were under less stress during weaning.

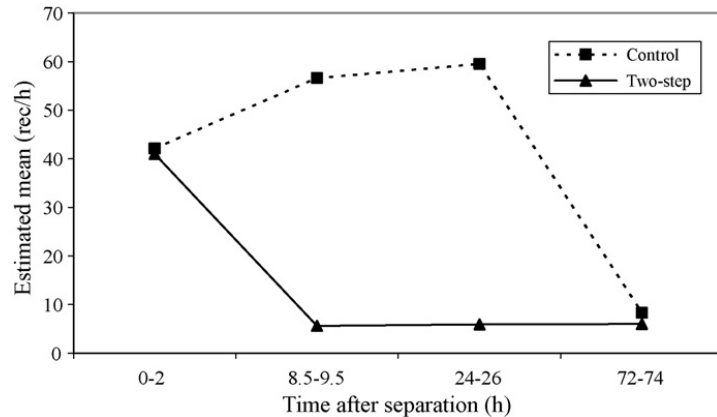


Figure 2. Represents the number of times the animals were observed and recorded walking during the four observation times (Loberg et al., 2008)..

Appetite:

The two-step group also had a higher record of eating in comparison to the controlled group, as seen below in Table 1 (Loberg et al., 2008). The two-step group did not stand out in relation to the controlled in the first section of observation but over time the calves time spent an even amount of time eating, ruminating and lying in contrast with the control group whose results were more sporadic (Loberg et al., 2008).

Estimated mean number of recordings per hour of the behaviours eating and ruminating, along with estimated mean percentage of lying, for foster calves that were either prevented from suckling and separated simultaneously (control = 6), or separated 2 weeks after the suckling was prevented with a nose-flap (two-step = 6)

Behaviour	0–2 h*		8.5–9.5 h*		24–26 h*		72–74 h*	
	Control	Two-step	Control	Two-step	Control	Two-step	Control	Two-step
Eating	0.4 ^a	19 ^b	17.3 ^a	5.6 ^b	10.5 ^a	9.5 ^a	7.9 ^a	8.3 ^a
Ruminating	9.3 ^a	12.3 ^a	4 ^a	17.8 ^b	13 ^a	22.9 ^b	19.5 ^a	21.7 ^a
Lying	27 ^a	27.4 ^a	14 ^a	75.3 ^b	45.7 ^a	75.1 ^b	75.5 ^a	78 ^a

Numbers with different letters within each behaviour and observation period are significantly different ($p < 0.05$).

* Time after separation from the foster cow.

Table 1: Estimated time involving eating and ruminating behaviours (Loberg et al., 2008).

From start to finish in this study it is evident that the two-step weaning method with the QuietWean nose flaps is comprehensive. It impacts the heartrate, weight, behaviour and appetite

of the study's calves in only a positive manor over the course of the study, thus leaving the calves weaned without the stress of being taken away from their mothers (Loberg et al., 2008).

Expenses:

QuietWean nose flaps are a great tool used for weaning as they are inexpensive to purchase (QuietWean, 2016). The flaps cost only \$2.15 Canadian dollars each making them extremely economical and the plastic flap allows washing, sanitation and re-use year after year. Therefore, producers can save money by only having to purchase the product once. The flaps are can be purchased individually or in bulk packages of 25 for \$50 Canadian dollar plus shipping taxes (QuietWean, 2016). By having the freedom to purchase the flaps individually it allows for the producers to buy per their herd size without additional unnecessary expenses (QuietWean, 2016).

Potential Benefits to Nepal:

Affordability:

The nose flaps hold many potential benefits for agriculture in Nepal, in addition to the very affordable price of \$2.15 CND (QuietWean, 2106). In using this two-step weaning method producers will also save money on fence repairs as well the reduced need to buy antibiotics, and the reusability of the flaps. By using the QuietWean flaps, calves and cows will not break fences in search of each other as the separation will be gradual and both parties will be ready for the separation when it comes time. There will be a reduced or eliminated need for antibiotics to treat respiratory distress caused by the vocalization during immediate weaning. The flaps are reusable making it a one-time investment meant to be used year after year, which is great for producers who may be on limited income each year. Within the agriculture sector in Nepal bison make up a large portion. The QuietWean nose flaps have the potential to be used as an aid in weaning bison, one of the common domestic animals being raise in Nepal, rather than just in the typical beef herds where tags are being used currently in Canada.

Stress Factor:

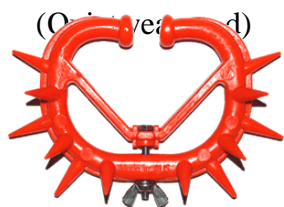
Abrupt weaning can cause calves to have increased rates of pacing, vocalization, and heart rate all signs of stress (Rood, 2011). By using the two-step weaning method it has been proven that it causes a lesser intensity level of the stressors. Lower stress levels help lead to a lower shrinkage rate providing a better product for consumption or resale at the end of a growth period (Loberg et al., 2008).

Benefits to Canada:

At this point in time the QuietWean nose flaps are only being manufactured in Alberta, Canada (QuietWean, 2016). Having the only manufacturing company of this product in Canada allows for more job opportunities. By exporting this product to Nepal, it will expand the distributing regions for this Canadian company enhancing their business and exportations. It is also beneficial because it gives Canada an opportunity to share its' industry changing technologies with developing countries, giving them an opportunity to change their industry's practices to increase their overall outcomes (QuietWean, 2016).

Competition:

At this point in time there is no direct competition in Canada for the Alberta company, but there is a company that makes nose rings in Australia (EasyWean, 2015). The company EasyWean, based out of Australia, sells a red nose ring for weaning calves made of hard plastic and includes spikes on the outer surface. EasyWean nose rings are put in the calves' nostrils the same as the QuietWean flap would be, but the ring works slightly different than the QuietWean flap itself. The EasyWean nose ring is equipped with plastic spikes that act as a "backup". The ring is an obstacle between the calf and the cows' teat, preventing the suckling of milk, the spikes are in place as a second preventative, for when the ring gets moved out of the way. When the calf is searching for the teat under the mother and rubbing along the udder the spikes irritate the mother and she moves away preventing the calf from suckling (EasyWean, 2015). Opposed to the QuietWean one week method, the EasyWean nose rings are left in place for a period of 4-6 weeks. EasyWean tags retail for \$8.74 CDN individually or a package of 20 for \$161.40 (EasyWean, 2015).



(Quietweaned)
("Weaning calves the easy way," 2015)

Of these two products, the best suited to benefit Nepal is the QuietWean nose flap for several reasons. The price of the flap in comparison to the ring is much more affordable for the people of Nepal, as Nepal is a very poor country (Lavé, J., & Avouac, J. P. (2000). The length of the weaning process is also much more efficient with the flap, with the time to having a fully weaned calf being less than half of the ring (QuietWean, 2016). This is beneficial to the Nepalese because they can begin the next phase of fattening their animals after they are weaned which helps to produce a higher quality product for resale or consumption.

Transportation:

Using FedEx to ship the product from Saskatoon to Katmandu is very expensive. The estimated quote formulated online to ship 50 nose flaps was \$280.01 Canadian dollars including fuel surcharge (FedEx.com). This is a pricey shipping rate for the product, but the overall bulk weight is not extremely heavy. An alternate route for the producers in Nepal to receive the product is to buy it from one of the QuietWean distributors closer to them (QuietWean, 2016). Some distributors closer to Nepal include Australia, Ireland, and Japan. There will still be charges for shipping but they may not be as large as these countries may already export to Nepal meaning that the flaps would not have to be shipped in a separate order rather they can be put on the same load as another product (QuietWean, 2016).

Producer Opinion:

In an interview with Gary Grubb, a cow-calf-backgrounder of Bruce County, he shared his opinion and experience with QuietWean's two-step program while answering the following questions (Grubb, G (2016, November 15)).

1. *Why did you choose to switch to the two-step weaning method?*

“I chose to switch to reduce the stress of weaning and what I believed to be the cause of morbidity rates being high for farm raised calves, never being trucked or commingled. Poor effectiveness of a vaccine program was being greatly reduced by conventional weaning”

2. *How long have you been using the nose flaps? Would you go back to immediate separation weaning?*

“About three to four years. No, [I would] never go back, morbidity rates [have been] greatly reduced or eliminated and post weaning gains are positive.”

3. *Ideally how long do you leave the nose flaps in for? The suggested 4-7 days as per the QuietWean company?*

“We have tried due to external factors to go as little as five days- which is too short of a time frame, seven and eight days worked this year, but next we will try a nine or ten-day period. Just to make a break complete for cows and the calves that can manipulate the flaps and receive some milk, but limited amounts.”

4. *What are the pros that you have noted? Cons?*

“Pros, are they work good to reduce the bawling associated with separation form dam and milk at the same time. Weight is static during period when flaps are inserted to when they are removed indicating calves are eating solid food to replace the milk in their diet and not losing weight due to bawling stress and not eating. I believe that the process of bawling greatly exposes the respiratory tract to stressors and infection. Cons are that they require handling pairs one extra time to sort and place flaps, but calves need to be handled anyways to administer last vaccine. Some flaps can be lost or manipulated sometimes but [it is] not a real problem, [it is] associated with smaller muzzled calves.”

5. *Do you find the flaps a burden? i.e. extra labour, extra handling etc.*

“Extra labour is a cost, but we feel that is easily recuperated by less sickness, less time handling sick calves, less or no antibiotics being used to treat stress related respiratory sickness.

6. *Have you seen a long-term impact on your livestock?*

“Livestock response has been nothing but positive, calves adjust to feed bunk and don't spend time standing around bawling, gains are positive.”

7. *Do you have any additional comments on the flaps?*

“Yes, our observations and adjustments to make the process better every year has been to keep a stockpiled pasture available just for this purpose of two-stage weaning. The reason is, calves require an easy to consume feedstuff, not [to] compete with cows at a feeder trying to pull

page off a bale or eat from a feeder designed for cows. [This weaning is most efficient with] lots of space, easy access to water, feed and fresh air.”

8. *Finally, do you feel these flaps are affordable and would benefit a poor countries agricultural sector?*

“Yes, reusable and durable, just clean and disinfect after use. Yes, this would benefit a poor countries agricultural sector because it will save them money on antibiotics needed to treat respiratory infections that come with traditionally abrupt weaning. The two-stage weaning is also relatively easy to achieve and does not require a lot to achieve. I think it would be a great option for poor countries to experiment with” (Grubb, G (2016, November 15)).

Gary’s opinions and experiences share the ease and flexibility in two-stage weaning. Helping to reassure that this method is more effective than abrupt weaning and that producers of all economic status’s can benefit from the use of nose flaps.

Recommendations and conclusion:

As displayed through the case study and the interview with a producer the QuietWean nose flaps hold large potential for the use in the agricultural industry within Nepal. The nose flaps would induce less stress on the calves being weaned as well as the cows that the calves are being separated from (Rood, 2011). Aside from the expensive cost to import this product into Nepal, due to shipping charges, the QuietWean is affordable (QuietWean, 2016). With additional research and planning it should be possible for the tags to be imported from a surrounding country that supplies the flaps rather than have Nepal import from the Canadian manufacturer directly.

It is possible for the product to be highly beneficial for the Nepalese producers after the barrier of importation is overcome. The producers of Nepal can use these tags not only in their cattle herds but along with their bison herds. By exporting to Nepal, the producers can benefit from an affordable, reusable and less stressful two-stage weaning program that results in a higher quality calf outcome.

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