

Catch Basin Pumping Pilot Project Update

Lethbridge, January 16, 2017
Manure Management Update

Just getting
started!!

TEAM

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Objectives

- **Ultimate**-AB Feedlot Industry catch basin management supports Social License Objectives.
- **Intermediate**- AB Feedlot Industry has the technology and support to effectively meet surface water management challenges and objectives.
- **Short Term**- increase awareness and understanding of current catch basin management needs and associated challenges/options .(S.L/Regulation)
- **Immediate**- Demonstrate and evaluate the potential of new pumping technology in industry setting and suitability of government support program. Data collection to inform extension and research.




June 10, 1:45 pm







A photograph showing a stream or ditch with a large pipe in the foreground. The pipe is surrounded by a large pile of cut, dried reeds or grass. The water in the stream is turbulent and white with foam. In the background, there are wooden fences, trees, and a building under a clear blue sky. A date stamp is overlaid on the image.

August 11
11:00 am

- **Why is this a matter of importance?**
 - **legislation (AOPA) requires surface water protection.**
 - **freeboard minimum to allow for a precipitation event.**
 - **Good animal environment and facility durability.**
 - **Nutrient management**
 - **Social License.**
 - **There are many challenges.**
 - **PROJECT WILL Help us understand our role and how we can help.**



What did we do?

- **Assembled pump and delivery system that has reasonable mobility. (approx 3/4 mile)**
 - Investigated, purchased, and modified.
- **Developed extension material and legal documents to support demonstration activity**
 - Developed site specific management plan
 - Signed agreements
- **Procured interested cooperators.**
- **Started in the North(Barrhead/Westlock) then moved to Lethbridge.**
- **Pumped basins –collected data**
- **11 feedlots in 2016**
- **7 feedlots in 2015**



Fill to the top of the label

PIBIR
Laboratories Inc.
1-866-450-3957

Matrix Description
water inure

Sample Identification
AJL7

Company Name
AF

Sampled By
Alix

Date Sampled (yy/mm/dd)
16/07/06

Time Sampled (AM/PM)
3:30 + 5:30pm

PBR Code



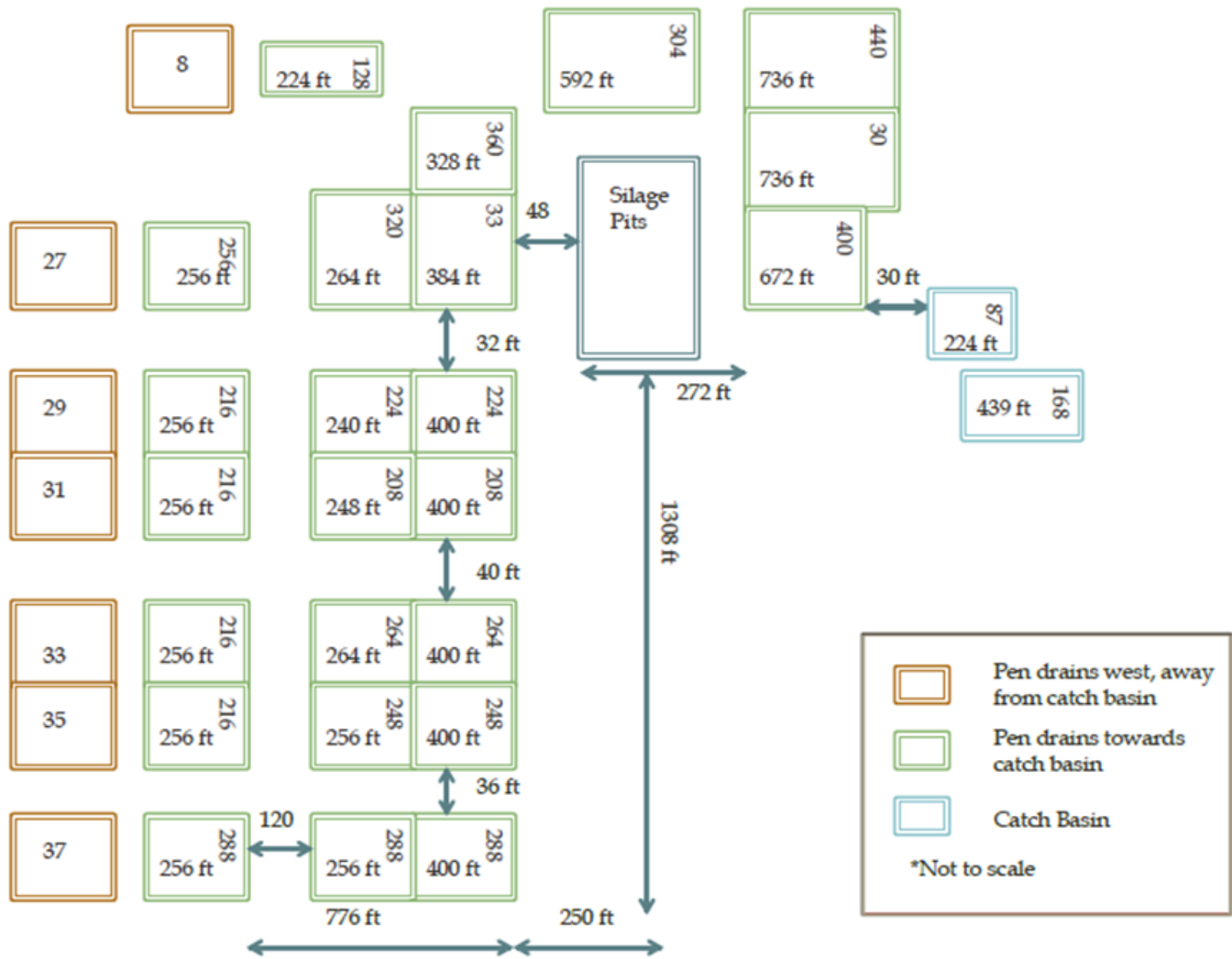






What did we collect?

- **Pumping Performance- times, pressures etc.**
- **Catch basin volumes**
- **Catchment areas---drainage system**
- **Application areas**
- **Historic management -equipment**
- **Producer testimonial- preferences/barriers**
- **Catch Basin content samples**
- **Soil samples– (applied vs not applied)**
- **System efficiency–**
 - Delivery-mobility (\$\$--equipment)
 - Equipment vulnerabilities



Data Analysis- Summary

Table: US gallons per acre spread by feedlot.

* Note: The calculation of overall gal/acre was done by finding the gal/acre for each pull of the travelling gun at a s

Feedlot	Total Volume Pumped (UG gal)	Total Area Covered (acres)	Overall gal/acre*
A	824 200	23.7	34 756
B	1 179 800	27.4	42 739
C	1 704 700	29.0	57 189
D	513 400	9.7	52 745
E	549 400	6.9	79 706
F	375 400	7.8	43 403
G	349777	10.7	35510

Data

Feedlot	Phosphorus (lbs/acre)	Potassium (lbs/acre)	Sulfur (lbs/acre)
A	3.12	45.36	2.35
B	15.32	194.92	3.42
C	4.07	84.69	2.91
D	9.02	221.75	3.15
E	33.3	159.0	10.00
F	46.39	325.89	23.74
G	25.00	428.00	52.00

Table: Nutrient content of pumped catch basin effluent measured in pounds per acre by feedlot.

OR

Figures: Nutrient content of pumped catch basin effluent measured in pounds per acre by feedlot

Feedback and Observations

- Producers are very unaware of existing catchment capacity.(solids buildup etc.)
- Access to efficient pumping equipment is limited. (less in South)
- Timing challenge---catchments full when fields are wet or have a crop growing.
- Convenience of the lay flat reel is likely biggest benefit.
- Custom operator (Ponoka)may be a very legitimate option. (\$\$\$\$?)
- Need automatic shut off on pump.
- Pumping out basin not applying nutrients

Feedback and Observations

- **Limited ability to address solids build up**
- **Access platform and agitation mgmt need work**
- **Content nutrient profile is correlated to design and management**
- **Response needs a systems based approach.**
- **Are there better options for feedlot surface management.**
- **Pumping further is feasible.**

SUMMARY—short term

- **System enhances application rates and regulatory compliance capacity .**
- **More acres. Turn PS into NPS**
- **Industry is very interested– interested in using equipment . IN PRINCIPLE**
- **Equipment durability and operation**
 - Weak link.
 - Pumping unit?
 - Agitation?
- **Pumping window challenges.**
- **Producers are not really motivated to invest.**

SUMMARY—Next Steps

- **Complete report.**
- **Engage with industry to share observations and discuss priorities.**
- **Does government have a role with equipment provision.**
- **Are there any program support needs.**
- **Extension and Research**
- **MMT feedlot surface management team.**

DISCUSSION

- **THANKS** for your interest.
- **THANKS** to the
cooperators and the team.