Western Canada Conference on Soil Health and Grazing 2017

By: MacKay Ross

Introduction by Gabe Brown, "This is an elite conference, of all Ray and I participate in, worldwide."

Principles of Soil Health w/ Ray Archuleta

The 5 principles; soil armour (residue), minimize soil disturbance (the less the better [seed coulter better than opener]), plant diversity, continual live plant root, livestock integration (diverse as possible).

The plan is never the goal, Principles are the goal/focus, methods and plans will differ.

Understand context; ecological, psychological, social, cultural and spiritual

Emulate nature, don't worship yield.

Recommended we watch Youtube video; "Systems Thinking" by Dr. Russell Ackoff

4 processes; solar, water, bio/chemical and community dynamics.

Biology from Bios which means life, reduce any stressors to the microbiology.

FIST; Frequency, intensity, scale (whole farm), Timing.

Integrated pest management is like chemo, do you have an economic threshold problem?

The soil is a sub aquatic ecosystem keep it damp, (residue, organic matter, living plants, no till).

Hay fields "play out" due to complete removal of nutrients.

Recommended reading, "Weeds: Guardians of the Soil" at astrotas.wordpress.com in PDF.

We concentrate on feeding above ground plants/animals, but feeding the micro "herd" with liquid sunshine provided by actively growing plants is more important in the long term.

An excessive residue symptom, is a biology problem.

Agriculture runs on ancient sunlight (oil, currently 3 calories of oil and gas per 1 calorie of food produced), we must capture new sunlight to feed the world.

Biomimcry; copy nature at all possible opportunities (burrs led to Velcro).

"Planting green" is the action of planting into an existing stand (usually a cereal like winter rye) and then terminating that stand with herbicides before the cash crop emerges. This leaves behind a mat or mulch of fresh biomass for the suppression of weeds and to feed the soil as the cash crop grows.

Ray quoted an interesting Bible verse, Job 12:7-8 "But ask the animals, and they will teach you, or the birds in the sky, and they will tell you; or speak to the earth, and it will teach you".

"Obedience to authority" 65% of people will apply lethal dose of shock therapy to another person under "obedience to authority", this explains why so few producers try new principles. Even new technology can be shockingly slow to implement.

What Plants Talk About w/JC Cahill

Do plants have behaviour? Has our knowledge of how people behave limit our understanding of plants?

If we view plants as individuals, and apply stimuli, they do in fact react. Stressors such as grazing/cutting will cause irrational root growth, (random as opposed to intentionally towards/inside fertile soil) for 100 hours.

Plants can identify kin or stranger, they will grow more roots when strangers are nearby (perhaps as a weed suppressant?)

Plants, when attacked, release attractants to the enemies of the pest, and tell neighbours of the threat. The smell of fresh cut grass is an example.

Strangely, smooth brome feeds pathogens that reduce their own stand and other species ability to compete.

"Grasp the universe as it is, not pursue delusion as reassuring as it may be"

Mycorrhizal Fungi in Agriculture w/Efren Cazares

Photosynthesis and oxidation are the two key actions, the making of glucose and converting that glucose to energy.

75,000 named species of MF, 1.5-5 million potential species. MF eat by contact, the enzymes produced by MF break compounds (rocks) small enough to absorb through the cell wall. All are decomposers, some are parasitic, but most are mutualists (Symbiotic).

Devonian period fossils (419-359 million years ago) show fungi with associations resembling mycorrhizal fungi.

MF can access water in micro pores for the plant during drought.

If buying mycorrhizal products, make sure they are propagated from local species

Most agricultural practices are detrimental to MF; commercial fertilizer, tillage, burning residue, fungicides, and herbicides (kills host plants).

Colonization of MF is not easy or cheap to confirm, spore extraction is a little easier. Fungi break down the phosphorus to be more plant usable.

The Footprint of Agriculture w/Tim Hardman

We need sustainable food production. Half of farms worldwide don't/can't feed themselves, off farm income, production that is sold at less than input cost, or simply low production.

People don't integrate advances for 30-40 years, in agriculture we have 5-10 years to do so before population catches up with current food production (worldwide).

Consumption of food is expected to increase 2.5 x by 2050.

Currently we have the choice of sustainable products and conventional, should we continue having a choice or should all products be sustainable.

In developed countries, 12% of food is lost at the farm gate mostly to aesthetics (looks different), 10% is lost in storage and processing, 40% is generated at retail/consumer level (appearance/leftovers) one can see why estimates vary from 50-66% total waste. Worldwide food waste is 33%.

Shift from maximizing one variable (or 3, N P K) to optimizing all variables.

Key areas to impact; habitat biodiversity (land use), soil health/carbon, water usage and effluent, GHG emissions, chemical/medical and toxicity.

Look up "Global round table for beef production" there was a networking session Thursday after the conference, but I had checked out and made all plans to head home, so I missed it☹

Transparency value is more important than physical value to consumers.

We are doing our part, for example, cattle efficiency has went from 10:1 in the 1950's to 6:1 today.

Healthy Soil for Better Yields w/Odette Menard

Healthy soil will produce 30% more yield with 50% less input than degraded soil.
4 keys; Rotation, OM input, decrease soil compaction and full season plant growth.

Plan for a cash crop (in a long rotation) and soil feeding crop in the same year.

The most efficient way to increase OM is living plants (all growing season if possible)

Biology is the basis of soil that will grow food, any decrease will hurt, any increase helps.

Frost will not break compaction without water, soil that is compacted will be dry.

Each earth worm midden equals about 25 total earth worms in the soil.

Producer Panel

Feed in the field on top of hills to replenish tilled/eroded soil.

Capture (harvest) and sell sunshine.

Assessing and Understanding Soil Health w/Yamily Zavala

It's all about the biology, maximize soil environment at all times. Good soil aggregation will look like cottage cheese and will maintain that even after gauge wheel compaction from seeding equipment.

Great strides were made from the mid 1800's to 1920's but soil science (and better management) blossomed from the 1930's till the 1960's. "Simple" commercial fertilizers have dominated agriculture since, mostly oxidizing the OM in the soil to produce the yields seen in the "Green Revolution".

"Soil Health Assessments" available as print outs online, (smartagriplatform.com/resources/Pictures/Visual%20Soil%20Assessment%202016%20Edition.pdf) provide the producer with a great simple, almost free (paper, pen, shovel) tool to gauge soil health.

New soil tests are becoming available that more accurately describe soil health, not just what an acid can strip from the sample. Haney, Cornell Soil Health Assessment, and the Soil Food Web Assessment are a few.

Keeping the Carbon:Nitrogen ratio in balance is important, too much of either causes problems. High nitrogen soil will use up SOM, high carbon will result in decreased N for plants.

Regenerative Agriculture w/Gabe Brown

Living plant/root at all possible times of the year, try to have a flowering plant all year for pollinators/predators.

SOM is the house, water extractable carbon is the food for soil biology.

Commonly available soil tests may show what is available, but not what is there, biology will make what is there available to plants.

Diversity at all possible points; long rotation, livestock, mixed crops and cover crops.

Watch C:N (carbon:nitrogen)ratio in crop rotation, F:B ratio (fungi:bacteria) is the most important need to a seed, the closer to 1:1 for both the better.

It's not how much it rains, but how much infiltrates, and is held by the soil.

Increase mycorrhizal fungi; No till, No commercial chemicals, No synthetic fertilizer, Living plants.
"New plant breeding has decreased the ability for the plants to associate with mycorrhizal fungi."

"Pack a shovel, dig in your soil"

Multi species cash crop, take profit over yield every time.

One of his best tools is a seed cleaner then turns that waste to fuel profit elsewhere (feed).
To be profitable one must understand soil, "Use the principles".
The Brown's use rhizobia inoculants, (cheap and you don't know when you will need them).

Managing Grazing to Restore Soil Health and Farm Livelihood w/ Richard Teague

Draw carbon into the soil with Adaptive Management Pasture (AMP)

"Rigidly supporting an argument against contradictory evidence is not science."

Maximize energy flow, livestock, yearlong (as possible) living plants, and diversity.

Aim to improve ecological function which will in turn increase profit.

200 cows drop 25 ton of manure (urine and feces) a week, that's over 35 lbs per head per day.

Dung beetles, in proper populations, can remove dung in 48 hours!

Livestock intervention makes the single largest benefit to increasing SOM. Even in continuous grazing (low or high), more GHG are sequestered than emitted. AMP grazing results in 85X the GHG sequestered as is emitted.

Greatest improvements is with >50 paddocks.

Soil sampling must be 1m (3' 3") or deeper to show the whole picture.

High Diversity cover crop w/David Brandt

Uses roller crimper on pre bloom cover crop, seed same pass, or as soon as possible after rolling. Don't roll/crimp a cover crop that dies and lays flat, it will stay soaking wet instead of moist. Don't roll in the fall?

All 4 crops represented, warm season grass, cool season grass, warm season legume, cool season legume. Keep C:N in sync, grass:legume and balanced to current residue.

Don't treat a whole field, leave a "check".

Daikon oil seed radish is not trademarked like "Tillage Radish". Radishes are earthworm breeding grounds.

Buckwheat makes phosphorus plant available.

In 50 years corn protein has dropped in half.

Dr. Alan Iwaassa

Researches nutrition and grazing management. Restoration of degraded grasslands and cropland.

SOM vs SOC (Soil Organic Matter vs Soil Organic Carbon)

55-60% SOC in SOM

Despite variability grasslands demonstrate a large potential for carbon sequestration.

Plant native seed whenever possible in any rehabilitation.

The Three Principles of Adaptive Grazing w/Dr. Allen Williams

Compounding, Diversity, Disruption.

Everything we do has a Compounding effect, any one action has effects (positive and/or negative) on many other parts of the whole.

There are no down sides to increasing Diversity. Diversity of soil life metabolizes a diversity nutrients, plant Diversity helps this process as well as provides Diversity of forage for livestock, the more Diverse the livestock on the land the more varied and beneficial the grazing effect.

"Nature abhors a vacuum." Disruption keeps things changing, adaptive grazing which is variable due to production, livestock type, stock density, timing, and management, provides that Disruption.

The Grass fed beef market has seen growing in demand by 25-35% per year for the last 5 years.

"Don't blame the tool, blame the craftsman."

Key line plowing land (sub soiling) to catch water and let weeds grow, then mob graze to rejuvenate. Key line follows the elevation lines of an area, this requires water to cross hundreds or thousands of "lines" in the soil that soak it up and distribute it throughout the area before letting the water proceed to the next "line".

Watch "Keyline Subsoiling Results at the Circle Ranch" on Youtube.

"It takes incredible knowledge just to realize the extent of our own ignorance."

When studying soil make sure you compare to original state (woods or native prairie), not to other degraded soil.

Nature is more collaborative than competitive.

"Wholistic Planning" not any one or 3 or ten things, look to improve the whole.

Livestock integration drastically accelerates soil rejuvenation.

"Continuous improvement is better than delayed perfection."

Public Trust and Connecting with Canadians by Crystal Mackay

www.foodintegrity.ca

Shared values is the bases of trust, transparency also leads to trust.

Have a conversation to connect, to engage, don't sell.

Keep it simple.

Don't be afraid to say "I don't know."

Have a little fun!

How do you reach a million Canadians? It starts with one.

Electric Fencing and Remote Waterers w/Jason William and Garth Hein

Grounding of the energizer is the key. Galvanized 10' ground rods, follow manufacturers guide to test if grounding is sufficient, recommends a minimum of 3 per energizer.

17" spacing between wires (for cattle, distance between eyes and nose), hot and ground and hot, on a three wire. Ground on top then a hot on a 2 wire (hot always on the bottom so animals don't try to go under).

3000V minimum from the energizer, more in the winter.

Do not use copper wire from energizer to hot wire, use aluminum. More than 6J energizer use an aluminum UG (under gate) cable to the "hot" wire.

Remote waterers w/ Marvin Jackson

Cattle need clean water, will choose a clean trough over "dugout" especially if trained to the trough first.

Livestock gains from remote systems are documented across all animal types and ages.

Solar will power amazingly large systems, if you need water somewhere, it can be done.

Creating Excellent Pasture From the Soil Up. w/Jim Gerrish

High energy, adequate protein, mineral rich, palatable, durable pasture.

Short grazing time, leave appropriate residual, allow adequate recovery, broaden biodiversity, and strengthen soil health.

MIG (Management Intensive Grazing) the management is what we need to intensify, grazing is a tool to be used daily, not "set and forget".

We need to be managing resources in space and time.

Regrowth, 4"-8" will regrow in 40 days, the more you leave the faster and more will regrow.

Grass feeds itself, then the soil, lastly it feeds the livestock, don't graze more than 33% leaf.

Concentrate on surface area of leaf compared to surface of soil. Four or more square feet of leaf per square foot of soil.

Grass yield maximizes at 28-32" of rain, more does not grow more grass.

Rate of grass recovery determines number of grazing cycles per year

1 cycle per 10" of rain in <25" per year.

Diversity gives more green leaves all year increase, LAI (Leaf Area Index), balanced nutrient, greater biological soil life, greater insect/animal life, ecological stability.

Must have more than 2 species of every plant type,(cool grass, warm season grass etc,)

Canadian Sustainable Beef Program

Canada was ranked 1 in the world for sustainable beef in 2015, but we had no standards/certification so it held little water. Earl's fiasco was the catalyst for forming the standard. Consumers want the sticker to tell them it's sustainable. It will rely on outcome based indicators, not prescribed practices.

5 principles are; Natural Resources, People and the Community, Animal Health and Welfare, Food, Efficiency and Innovation.

CRSBsustainablebeef.com

Integration of livestock w/ Gabe Brown

Our farm as an ecosystem, everything we do (or don't do) affects the ecosystem.

What do we have; land, dollars, people, genetics...(what are your resources?)

No winter calving, minimal processing of feed, minimum inputs.

Manure management is handled by the 17 species of dung beetle on their ranch.

Brown's were raising 1400lb cows, now 1075-1150lbs and are more profitable.

Basic grazing management, maximum of one grazing per field during the growing season, and once in dormant season if possible.

Agriculture has lost the power of observation, a farmer can't see much from the tractor cab 10 feet of the ground at 5-7 mph with a 60 foot implement. Walk your fields, take a shovel, dig.

Do not put up permanent fences inside fields, all poly temporary cross fences. More flexible and less expensive. In pasture, and increasingly in crop, perennials are king. Deep roots and therefore better resilience.

Keys to planting in sod; seed in dormant season, seed fall biannual.

Food as health has become a huge trend. Healthy soil is the only way to produce nutrient dense food. Seeing builds trust, trusting people buy. Grazecart.com for instant internet sales without the "store front". Explain your "why", consumers want to know why you farm the way you do. With internet and today's tools, distance to consumers is almost immaterial.

Brown's have their farm in a living trust.

"People laugh at me because I am different; I laugh at them because they are all the same,"

Agronomy Update 2018 Red Deer Jan 9-10

By: MacKay Ross

Step back from the trees to see the Forest w/Emile deMilliano

Risk and risk takers, farmers will "seed" $200/acre and consider it "business as usual" but won't invest 5% as much in the stock market. Risk means different things to different people.

Always consult Ropin the web for probability of response before applying anything to your soil (phosphorus, boron, etc).

We don't spend enough time understanding the soil under our feet, the 2 most used tools on a farm should be the soil probe and spade.

Understand the impact of weather (I think most farmers do) over half of yield variability is due to weather variability.

Blend science with practical experience, research information needs practical integration.

Decades of direct seeding has made nitrogen response curve info obsolete.

2018 will see the rise of the robots (DOT, drones, Google earth imagery, etc).

Optimizing management and inputs for top Yields w/ Dr. Ross McKenzie

Climate records Alberta is a great resource for climate history, climate averages have all increased (frost free days, corn heat units, etc)

How carefully do you look at your soil? Alberta soil database will give you insight into your soil. Set goals on the soil you have, know the variation in your fields.

Stored soil water + precipitation = the major crop yield indicator. The higher the SOM the more precipitation the soil can hold, the higher the yield.

Good rotations increase yields and improve soils, 4 year minimum.

Stand establishment is one of the best yield management tools. Seed at the early optimum, (more on this later in the conference) losses of more than 1% per day in yield, can result due to late seeding.

Lack of soil microbes decreases nitrogen plant availability.

Band in Nitrogen in the fall, less than 7'C soil temp, broadcast is maximum 40% efficient with urea inhibitor, again, band it in.

Foliar Nitrogen application is less than 5% efficient. Band ESN in wet soil, for late deficiency.

Recommended the "Modified Kelowna" soil test for Phosphorus in Alberta. Seed place as much P as is safe.

About 20% of Alberta is K (potassium) deficient.

Elemental sulphur 0-6" depth is usually low, apply a little even if 6-12" or deeper is sufficient, this will supply plants till the roots through the first 6".

Boron testing is unreliable, often over recommended.

K,S and micro summary, educate yourself.

Walk your field to make decisions, once a week.

Identify and counts for insects (or weeds or fungal risk) to identify economic threshold, why spray if it is cheaper not to?

"Healthy crop has a higher risk of disease." I found this was a very strange thing for Dr. McKenzie to say, wouldn't a healthy crop have less risk?

Use unbiased info to make decisions, not salespeople's claims.

Long term management effects on crop yields and soil Nitrogen cycling w/ Miles Dyck

No-till for more than 6 years decreased the need for N by 40-50 lbs per acre.

Long term experiments are needed to show management effects.

Breton plots, since 1930, have shown many long term management effects.

Recommended Lime when ph of the soil drops to 6, to get it back to 6.5.

Manure best for C and N in treatment and rotation plus legume/long rotation. But not the best (average) in yield, a close 3rd and barely statistically significant, compared to 2nd. Manure has a lower NOS (Nitrous Oxide) to atmosphere compared to yield.

Balance of nutrients increases N uptake.

Growing red lentil in Alberta, how are they different than pea. W/ Robyn's Bowness Davidson

Similar to pea but the differences are significant.

Some areas will grow peas but not lentils, sandy or sandy loam, lentils don't compete well, and farmers can't spray lots of lentil specific weeds.

Seeding rate can vary .8-1.6 lbs/acre, 11-12 plants per square foot is the target.

Land rolling is key.

Phosphorus is important.

Inoculate! Can't beat the symbiotic N production from bacteria.

Up to 15lbs N (seed placed) to start helped most times.

White mold, spray fungicide before canopy closure, more likely in wet, higher clay, high OM soil.

Harvest; short but doesn't lodge, lifters help, store at 14%, but harvest at 16-18% to save on handling damage. Lower pods ready first, desiccate with Reglone as lentils need the speed, glyphosate is to slow.

Bug Roundup w/Scott Meers

403-376-2970 text insect questions.

Think about beneficial insects, before you spray.

Diamond back moth 3rd generation in one year is the problem, results in shatter not true yield loss. Their cycle has decreased from 51-21 days. So far they are south of TransCanada (Hiway 1).

Cutworms have lots of natural enemies, do not spray if you don't have to.

Flea beetles, early seeding decreases treatment efficiency, resulting in thin stands.

Bertha army worm is at an all time low.

New canola midge (flower midge) parasitism is keeping populations down, it might transfer and attack sweet midge.

Wheat midge forecast for peace is low for 2018, dry spring will result in the midge staying in the soil.

Wheat stem sawfly, dry August increases population.

Cereal leaf beetles, controlled by Government of Canada released parasitoids.

Bruners grasshopper is the key species in the peace, looks like 2018 will be low.

Cabbage seed weevil so low in southern Alberta in 2018 lots of producers didn't spray

Pea leaf weevil update w/ Dr Meghan Vankosky

Pea leaf weevil, low but has a 2 year fluctuation.

Add legume smell to pheromone traps in the fall.

Terminal leaf damage indicated pea leaf weevil when scouting sites, but won't touch lentils.

Nodule damage (untreatable) by larva, results in as high as 27% yield loss.

Rotate, plant in no-till, inoculate.

Some small beetles eat eggs in lab settings, large beetles in the field eat adults (beneficial watch pesticide use).

Pesticide Re-evaluation in Canada w/Andrea Sawatski

Re-evaluation to ensure efficacy and side/adverse effects.

Currently 15 year cycle. Ingredient not product (glyphosate not Roundup)

Enhanced efficiency nitrogen fertilizer: what when where. w/Tia McClellan Maaz

Combines right source, time and place.

Polymer releases over time, Urease combats hydrolysis, Nitrification limits leaching, combinations thereof have the potential to minimize loss in a farm specific situation.

Manure has lower GHG (greenhouse gas) emissions.

Polymer can be placed in seed row, mixed with uncoated fertilizer, has even more benefits.

Crop Availability of Sulphur from Elemental Sulphur Sources w/Dr. Kent Martin,

Sulphur deficient plants show yellow leaves, check fresh growth, if green the deficiency has been solved.

Sulphur doesn't come with rain (acid rain) from industry anymore. Elemental doesn't leech and is slower to correct deficiencies, so don't over apply and apply small amounts in following years. Small particles size is important.

Water, air and microbes are needed to make ES plant available.

Urea-ES product has great potential

Alleviating Subsoil Compaction w/Dr. Tom Jensen

Pore space is key, microbes need a sub aquatic (air and water) environment.

Granular (aggregated) soil has best infiltration of water and air.

Dry soil tilled will break large aggregates, wet tillage compacts, damp soil tillage can break lumps to increase aggregate. But that perfect timing is a challenge.

Most compaction happens in harvest due to limited time to get the work done.

Deep root plants, controlled traffic, tracks/fat tires, subsoiling are the tools to correct compaction.

Spring subsoiling appears to be the best timing.

Prairies are lucky as the freeze thaw breaks up compaction. Is that true in the peace country, does that depend on soil type?

Reducing N and P load in water bodies. W/Trevor Deering

Manure management, cost of hauling and incorporation.

Manage the risk of Leeching.

Apply manure based in phosphorus content not Nitrogen content.

Map property to establish where and when to spread manure, and some grazing planning to avoid freshly applied manure.

Industry update:

Bayer w/Sheldon Toews (Taves)

Bauer label changes

Olympus pre emergent wheat herbicide tank mix with glyphosate.

Retails in 2019

Prosaro XTR available 2018, leaf and head disease suppression, leading to higher yield (2.2% gain, is that statically relevant?).

FMC w/Sonia Matuchuk

Bought some dropped products after Dupont's merger.

Nufarm w/Greg Collier

Label updates

Fierce herbicide launch and available 2018.

Nipslt SUITE seed treat, fungicide and insecticide.

Dow/DuPont w/Shawna Hogg

Label updates; added control or suppression of specific weeds and new tank mixes.

BASF w/Malorie Aube

Inoculate launch, 4 new fungicides, label updates.

Wild oat Herbicide Resistance: few active groups left. W/Dr. Hugh Beckie

76 HR weeds in Canada, according to his map, at least 1 case in Clear Hills County.

See photo

46% of Alberta farmers grow canola every other year rotation.

See photos of comb cut

Tools for Weed Resistance Management w/Eric Johnson

One shot weed control in pulses unlikely concept in the future.

Talked about possible future herbicides that are currently in submission for registration. Most are "old formulations" that just haven't been registered in western Canada.

Injury to cash crop is going to be common in weed control, but yields will be largely unaffected.

"Focus" on cleavers is effective if <6% OM (organic matter) is present in the soil.

Quote "We need to stop looking to herbicides to fix a problem caused by herbicides." A Professor in Wyoming.

Dicamba resistant soybean is here, however Dicamba does nothing to RR volunteer canola.

Dicamba in soybeans w/Dr Tom Wolf

Releasing soon in Canada due to HR

1/30000 of label rating will show symptoms on soybeans but may not result in yield loss.

Extreme application rules.

100% spray overlap.

Can vapour drift wet or dry 3+ days after application.

Restricted applicator status in the US.

Inversion serious issues.80% chance every night.

Glyphosate Resistant Weeds in Western Canada w/Dr. Charles Geddes

Low cost since 2000 has depressed new herbicide invention.

5 GR weeds in Canada, 1 in Alberta, which is kochia.

Multiple use per year especially post emergent application.

My note: should we propose a 2 crop rotation minimum in the county, with the move to increase every election cycle (give people 4 years to forget), someone found with clubroot who is made to go to a 4 year rotation will be known to all due to suddenly rotation of crop.

40 GR worldwide. Increase diversity in all aspects (rotation, usage, etc) to delay GR.

Up and coming problem weeds in agronomic crops w/Nicole Kimmel

Lambs quarters seed is viable for up to 1700 years!

1.25" long by 3/8" dia Canada thistle root will regrow for up to 100 days.

New; Marsh Willowherb, field violet, marsh cudweed, yellow cress, tumble mustard, nodding thistle, garden Orach.

Loss of sensitivity to fungicides in field crops. W/ Dr Bruce Gossen

Disease management should be mostly finished before planting.

Rotation, genetics, scout.

Fungicide use has tripled since 2006-2016. Viticulture resistance first, extensive field resistance last. 5 years of fungicide use, results 90+% fungicide resistance.

Need to develop low cost local lab usable pathogen tests.

Effective long term if used minimally.

Overview of cereal disease. w/Dr. Kelly Turkington

Barley; scald, net blotch, spot net blotch, spot blotch(same fungus responsible for root rot),fusarium head blight.

Wheat; spot blotch, tan spot, stripe rust, fusarium

2 year crop rotation is not enough time.

2018 could have diseases like 2016 or even worse if the same crop is planted.

Stripe rust usually blows in from Washington but can overwinter.

Field scouting important.

Canola Disease Update w/Keith Gabert

Sclerotinia, clubroot, blackleg, unfortunately crop rotation doesn't affect sclerotinia.

Think of clubroot as a soil disease not a canola disease.

As little as 2 crops of GMO canola and it can be susceptible to clubroot.

Rotation of major genes not the same

If we are serious about clubroot we will cut canola acres. Every "little hammer" must be used to slow/reverse clubroot.

Pulse disease update w/Dr Syama Chatterton

Root rot is most common, fusarium, bacteria blight (plants will grow out of it), Mycosphaerella blight,

Lentils, the diseases are coming.

Alberta's fusarium infection risk assessment tools w/ Ralph Wright

Rotation, stagger planting dates, can spread to adjacent fields.

Used weather stations from around the province and a formula (borrowed from Sask and MB) to computerize hourly risk assessment.

Weatherdata.ca

On a trial basis, it is a decision support tool, not decision making tool.

Aerobiological surveillance of wheat pathogens w/Dr Andre Laroche

Adhesive microscope slide in field for a week then magnified to check for spores, not a great measurement tool. Burkard cyclone collects and tube is collected and examined weekly, is far more accurate.

6 wheat pathogens tested for, must correlate to economic threshold for each. Significant link to environmental conditions.

Craft Beer Update w/Bob Sutton

Craft brewers buy 23% of malt in n America. 10x the GOP usage. 50% market share by 2025

ASB Provincial Meeting

January 16-19, 2018
FOOD FOR THOUGHT

By: Garry Candy

Peter Brown was the MC for the event and kept things on time.

- Doug McCaulay

  Doug talked about the Dominion Lands Act that was brought in to settle treaty claims in 1871 which stopped the US from claiming land. The 1872 Homestead Act ran for about 50 years. In 1896 there was no railroad yet but 118 million acres were given out for homesteads, CP Rail and the Hudson Bay Company. When 1929 produced drought, grasshoppers and dust storms, many people left their land. In 1943 ASB pilot programs originated with $1000.00 per committee. Its mandate (with Agriculture Field Men) was to enforce the pest, weed, conservation, clean water and animal disease control acts. An appeal process was put in place – advisory committees were set up to gather information and a provincial ASB was formed comprising of members from all over Alberta.

I remember my Dad (Charlie Candy) saying that his dad described the homestead act like this – "You bet the government $10.00 (or thereabouts) against 160 acres that you could break 40 acres of land in a set period of time and live on it for 12 months of the year."

- Elaine Froese

  She is a farmer from Manitoba holding 2 degrees and travels, speaking about succession plans for farmland, machinery and cash transitions to children. She speaks at many engagements through the year and relates true life happenings that you can relate to your own circumstances. She prefers to be a farm family coach, can be contacted at 1-587-800-4323 and has a blog on Grain News.

- Michelle Stirling

  She spent 12 years in Israel and spoke on the climate plan and coal phase out. She made mention that this really gained momentum in 2006, the year that Al Gore's book and movie were released. She contends that that we are experiencing cyclical patterns and that some scientists do not feel it will be catastrophic and changes will be .12% warmer and .08% cooler. She stated that climate change predictions are built from computer simulations and not based on actual observation. The carbon tax is simply based on a pay now for something that may happen in the future. CO_2 is thought to cause warming but there has been no significant warming for 15 years. She referred to Christopher Essex and Ross McKitrick (Friends of Science) who claim that all information is based on climate models and that models cannot model effects of cloud. Dr. McKitrick claims that tying climate change models to economic models is not realistic. 102 computer models are showing higher temperatures rising while the data

says graphs are flat. She claims millions and billions of dollars are funding scare tactics since Gore. There has been a weakened case for human caused climate change but only a .05% change in temperature over 20 years at a cost of trillions of dollars. She spoke of a book coming out by Mark Shapiro on "The Climate and Marketing an Invisible Product".

- Christine Eynek

  Ms. Eynek has spent many years in research of Camelina and is very passionate about the possibilities of this plant. The plant is much the same as Canola or Mustard – it is an oil seed. The plant has small yellow flowers – it is self pollinating, hence no need to grow large flowers. The green pods produced change to yellow and brown. Seed to harvest time is 85 – 100 days. It is a true dryland crop, seedlings are somewhat frost resistant, pods shatter resistant and contains 41-42% oil and 30% protein and is 1/3 to 1/2 the size of canola. It is used in medications to cut down on cancer growth. Camelina is known under the name Cypress and seeding rate is recommended at 300 seeds per square metre with a minimum of 100 seeds per pound. Better results are obtained with 5 – 7 pounds with a seed depth of 1/4" and works well being broadcasted. More information can be obtained at SmartEarthSeeds.com.

- Bruno Wiskel

  He spoke of ways to make more profit on a cow/calf operation such as fall calving, rent rather than owning bulls, feeding on side hills and when feed is high, find cheap feed or sell both your cows and feed. He is a bit of a comedian and hires out for events (possibly how he increases his profits).

- Dr. Jan Slaski

  Speaking on Industrial Hemp – she mentioned that hemp is the oldest fibre and feed plant dating back 6500 years. The Greek name, Cannabis, means fragrant cane. Turpenes and turpenoids in Cannibis are considered anti-microbial, anti-carcinogen, anti-oxicident, analgensic, a pain killer, anti-inflammatory, muscle relaxants, anti-depressants and psychoactive. In Cannibis over 120 different Turpenes can be manufactured – some only in small amounts and some in double digits. There are two main species: Sativa and Indica. The THC levels in hemp are less than .3% while in cannabis can be as high as 30%. The grain type is a shorter plant with higher yield of hemp buds whereas the fibre type is a dual grain and fibre plant with a higher stem yield and lower grain yield. It is the fastest growing plant next to bamboo. One of his test plots grew 3 feet in 5 days in July. It is a multi-purpose plant as every part of it is of use. Hemp was used for sails and ropes for ships in the 17th century. Production of synthetic fibres and narcotics in the 20th century effectively killed the use of hemp. The demand for hemp fibre, though, is increasing and is showing consistent growth of acres in Alberta. Research is ongoing in the fields of feed stock development, fibre processing, bio composites, market development, evaluations, breeding of the fibre Scilestra and new cultivar breeding for Alberta. Seeding is from mid May to mid June with 100 – 300 seeds per square metre to a depth of 1.5 cm. Fertilizers can be manure nitrates; 20 – 25

kg. per hectare for grain, 40 – 60 kg. for fibre and a temperature of 8 degrees and up. Some types are Finola, X59, Ketani, Grandr and Picollo. They have had field trials at Falher. The crop does not tolerate compacted soils and land with poor drainage. The seed can be damaged by too high fan speed on the air seeder and fertilizer should not be placed directly with the seed. It controls weed growth by closing the canopy early in the plant growth. It is susceptible to Sclerotina so need to avoid rotations with Canola. It is susceptible to mold but is somewhat resistant to frost. Fibre processing of decertification – separating the stem is being done in Vegreville. Bio composites are good for the auto industry as can be used in the manufacture of canopies, snow boards and skate boards in Drayton Valley. Just Bio Fibre will have a booth at Farmtech – their building systems promote healthy indoor quality.

- Jim Hole

  Cool Green Living. He spoke on a variety of topics including deformed plants such as twisted up carrots, potatoes with bulges. He said these are good to eat and there could be damage from cattle manure if the animal had eaten anything sprayed with chemicals such as Tordon and said as much as 4% of packaged compost is contaminated. He spoke about growing heirloom tomatoes which are delicious but not perfectly round as well as San Mariano tomatoes which are the best for Italian sauce. The future for greenhouse growing to market finished vegetables and fruits is using led lighting throughout the plants. Plants are then seeded closer together which makes better use of space. This type of lighting arrangements work very well with vertical growing demonstrating the use of vertical pallets in which seeds are placed. Changing the colour of the led lights will alter the outcome of the plants. Jim was a very interesting speaker and made use of beautiful slides.

- Nancy Lowery

  Called herself a recovering project manager and spoke about her relationships with horses. She spoke on the benefits of being around horses; they have taught her patience and the need to observe and listen to patterns. She was a good speaker with a lot of common sense information.

- Brad Osadczuk

  Brad is the rancher from Jenner that had the case of Bovine Tuberculosis on his ranch – a Mexican strain of TB. He talked about going through the nightmare and felt that he alone was going to ruin the cattle industry in Alberta and Saskatchewan much like when BSE was discovered in Alberta. All costs of the quarantine – testing and transportation were initially charged directly to him. They were told that all the animals would be destroyed including dogs and cats – this did not happen. Because of his large operation, he had cattle on lease with neighbors. In the end, 11,000 cattle were destroyed. His own herd of 1200 cow/calf pairs and 53 bulls were destroyed. They were required to demolish all wooden corral systems, clean down to the dirt and

disinfect. Steam trucks disinfected the metal corrals and then required an additional disinfecting by at least 45 days of sunlight. Out of 38,000 animals that were tested, only 6 tested positive for Bovine Tuberculosis.

- At the ASB Meeting, 12 resolutions were voted on with all but 3 carried.

Farm Tech
January 30-February 1, 2018
Edmonton, Alberta

By: Garry Candy

There was an array of excellent speakers with a keynote speaker to start each day and ended the event with the Right Honorable Steven Harper. There was a trade show on all three days primarily about crop inputs. Close to 2200 participants attended the show.

- Darrell Bricker

  He grew up in Nova Scotia and is CEO of IPSOS - public affairs on national and International trends. He began with a quiz as to how well we know our country:

  - Area that supports immunization the most? Atlantic Provinces
  - Top tax hater province? Quebec
  - Most religious province? Atlantic Provinces
  - Province most against immigration? Alberta
  - What is the Muslim population in Canada? 2%

  He spoke about the changes in family size – in 1961, 4 children was the average whereas today it is less than two due to the birth control pill and lifestyle changes. The highest birth rate in Canada is the province of Saskatchewan. Less population affects the marketing of agricultural and other products around the world. The birthrates are less that one half what they were in 1961 worldwide, even in India and Japan. Life expectancy in 1920 was 57 years, by 2036 it is expected to be over 87 years; therefore we have an older population to market to. Persons being 65 years and older has doubled since 1961 and today we have more people over the age of 65 than under 15; and 7500 people over the age of 100 which is expected to reach 100,000 by 2061. The result is that older people are the mainstream, not the millennials! Today, one half of the world's population lives in cities and will be two thirds by 2050. Western Canada is growing the fastest and has the fastest population growth in the G8 primarily because of immigrants. There will be 333,000 immigrants this year coming mainly from the Philippines and India. When looking at marketing products, all of these factors have to be considered including that Asians do not drink milk. Suburban communities are the fastest growing while increased numbers of older and younger women are living alone. He summed up by reiterating that these are the trends and markets will follow.

- Alberta Barley Growers – Key to Selling Malt Barley

  Carmen Hamill: panel host and speaker, a marketing director out of Calgary.

  Josh: from Ponoka, an operator and formerly in a chicken broiling operation, now growing canola, barley and peas on 3600 acres. In 2017 he opened a micro-brewery. He spoke

about getting started in the brewing business; it involves a large investment but the payback is good in both dollars and the satisfaction of making a good beer.

Matt: He took a Brewmaster Program at Olds College and spoke about RBC loans to start a micro-brewery. Matt has a degree in Agriculture and with his family started brewing in 2014. He said that micro beer uses 3 to 4 times the amount of barley per beer than macro breweries.

Hannah: took over the family farm at Cluny after achieving degree in Soil Science, uses barley in her crop rotations and is a director on the Wheat Commission. She spoke on the difficulties of dryland farming and the importance of organization and record keeping.

- Dr. Boyd Mori – Midge Species

  There are about 6000 species of midges which look like small flies that have been identified to this point. They affect the agricultural and forestry sectors. The two species of future concern are the Wheat Midge and the Swede Midge. The movement of these midges is from the east to west and has not made its way into Alberta at present. The midge female lays eggs on the plant leaves and in the boot. When the larvae hatches, they feed on these which halts plant growth, thus reducing yield. Ongoing studies involve traps and DNA testing. One specie that we may be involved is the Canola Flower Midge (Conterinia) as it is now as far west as Wainwright. Damage shows up as little black spots on the plant.

- Tyler Wist (degree in Agricultural Research – Midge Species

  The Wheat Midge (Sitodiplosis) is the most serious pest of spring wheat in Western Canada. It overwinters in cocoons underground and will not emerge until tillage and/or rain in June. If this does not happen, they will wait up to 5 years until conditions are right. You must look for them in the boot as they only fly at dusk or dawn. The most significant loss is due to kernel damage, most of which you don't see because the combine destroys them. In severe cases there can be a loss of up to 80% in yield. Lorsban works to kill them, spiders and beetles eat them and there are midge tolerant wheats.

- Jay Fuhrer (Bismarck, North Dakota) – Plot to Field: Planting Green

  A very common sense speaker – spoke about learning from garden plots. He said that cover crops take CO_2 from the atmosphere and incorporate it into the soil. Since there is not much green growth that collects CO_2 in the spring, fall and winter, one should plant cover crops. Not only do they replenish carbon in the soil that turns the soil black and healthy but they help control erosion. There are three types of soil: sand, silt and clay. In some areas, there are about 10 inches of soil where there used to be 2 feet because of non-replenishment of carbon in the soil. Salinity increases when water evaporates rather than being used by the plant and the salts stay behind. He claims whole civilizations died when the soil stopped being productive. He made reference to a book by David Montgomery – Dirt, the Erosion of Civilization. Different crops cause differs effects on the soil: wheat – high carbon, soybean – low carbon. Soil Health Principles or the capacity of soil to grow: green plants provide 60% carbon while CO_2 goes into the air in decayed plants. Carbon is needed in the soil is why cover crops are necessary. Cattle grazing is beneficial as they only graze the top few inches and tramp the rest into the soil. Covers

should be seeded immediately after harvest, on his farm the drill follows the combine and he then grazes the tops – even suggested borrowing animals if you have to and tramp in at least one half in by regulating how long the herd stays in. When grazing is complete you should not be able to see the ground. The protein and energy is in the top one half of the plant and the animals get that – the ground gets the rest. Bi-annuals address all needs by interseeding or after harvest or by broadcasting in the growing season. Fibrous plants add carbon. He claims wolves are good for the soil because they move animal herds and tramp the plants in.

- Sir Albert Howard – "Agriculture Testament for Managing Cover Crops Profitably" – 3rd Edition

  Soil residue colors from the crops: dark hue absorbs light and heat, light hue reflects. Nitrogen is not good left over in the soil – cover crops take up the left over nitrogen.

- Emily Mordell – Dietician

  She spoke primarily of family time revolving around good food and conversation. Food feeds the family and the soul. It is important to encourage healthy eating and family time. For most families, serving junk food, meals are a source of stress. Good mealtime habits reduce stress and enhance family knowledge. She suggests:

  - Stock the pantry
  - Plan ahead
  - Reinvent food at busy times by using left overs

  Her 10 – 50 – 1 rule is:

  - Aim for 10 minutes of talk time during a meal
  - Allow the kids to speak 50% of the time
  - Teach a new thing – words or activities each day

- Dr. Linda Duxbury – Life Balance; Retire, Get Balance, Die

  Balance and stress concerns are on the rise. Young men have more stress than women because they are with young women. Men are doing more around the house and with the kids. Families are not started until later in life and women are more set in their routines. The Work/Life Balance is harder. No one can give you balance and the scales are always changing:

  - Role overload – antidepressants are the most sold drugs
  - Interference between work and family
  - Family interferes with work
  - Care giver stress

  People now in their mid-30's generally have only one child and life expectancy has increased from 43 to 83 years now. Elder care is more difficult than child care because

adults do not want to be treated as children. Young people do not want their parents' lifestyle and the quality of life is deteriorating in Canada. 70% of people say technology increases workloads and stress due to constant communication. Technology has caused expectations of availability at all hours and all days. People can be with kids physically but on the phone or not with them mentally. She says 60% of Canadian employees have no balance and blame their employment and their bosses. Her mantra is "Change or Die". Do what you can do and delegate the rest but do not micromanage. Teach them, don't blame them. Three hours of sleep loss has the same effect as three drinks on mental ability. Slot time as to how many hours you think it will take to complete a task, double it and then double it again. People 37 – 47 are motivated by money and view money and security as the same thing.

- Gitane DeSilva – NAFTA

  She is a professional Diplomat and is Alberta's senior representative to the United States in Washington:

  - USA exports more to Canada than 5 countries altogether
  - Showed a video on who buys the most between Canada and the USA
  - USA/Canada are the best trade partners – we share a common language with open market access.
  - Agricultural sector is the largest trade between countries
  - Trump crew changes positions hour by hour

  There are 28 chapters under negotiations of which there are 5 poison pills (she did not elaborate on which they are) and a sunset clause which means they could make an agreement and it would end in 5 years. In Trump's State of the Union address he did not mention NAFTA but talked about buying American. A Republican Governor is speaking up about the Agricultural sectors that are involved on both sides. Mayor Iveson is in Washington meeting with several mayors from USA, Mexico and Canada. 14,000 jobs in the USA directly depend on NAFTA. The USA surplus trade with Canada is in the billions of dollars. The USA deficit trade with Canada is in energy. 40% of Canadian Agricultural exports go to the USA. The USA would suffer more than Canada or Mexico if NAFTA ends. Timelines have been extended because Mexico is electing a new president which will result in an approximate 6 month lag. If the USA leaves NAFTA, Congress will have to act. In the meantime, Plan B:

  - TPP – market diversion
  - Possibly Canada and Mexico only
  - If USA exits they need to give a six month notice

  She is feeling more positive as USA Business entities are putting pressure on Trump.

- Drew Lerner - Wild Wacky Weather

  Drew has been forecasting weather worldwide for 38 years with World Weather Inc. He used tons of charts and comparables but the long and short of it is: water in the Gulf of Alaska is getting colder creating a high pressure ridge. He says for the USA more snow with warm wet springs and drier summers. In the Equator regions it is colder than normal. The sun's intensity is in 11 year cycles can be seen as black spots on the sun. Cooler summers are forecasted across Canada and the USA will be cooler and drier.

- John MacLean from Sydney, Australia

  John is an athlete who was hit on his bicycle by a truck. This broke his back, had punctured ribs and lungs, lost the feeling and use of his body from his bellybutton down. Because of his desire to succeed he worked and trained and did races and triathlons with bikes designed for hand use. He became more and more successful and began winning competitions. He also got married and has a son. With the strength and vision he had they began, after 20 odd years, working on his legs and he can now stand and walk a little. I think that when we have it tough sometimes, we need to remember what he went through.

Robynne Anderson – Global Trends and Goals for the Agricultural Industry

700 million people were hungry for the last 2 years and it is expected to be up to 850 million. Agricultural products will generate 75 billion dollars in sales by 2025. The Agricultural sector is heavily scrutinized as to safety etc. Agriculture is being blamed for climate change through pollution and water usage. Although growing plants reduce CO_2 that is overlooked. Water usage in agriculture is far less than for household use. She says we need smaller farms and for youth to get involved as they are critical for sustained demand. Her conversation also addressed food loss and waste – there is too much vocalization from those that have never been on a farm. Robynne represents Agriculture at UN meeting of 193 countries. Under sustainable development there are 17 goals and 169 targets. Some include:

- Reducing poverty
- Improved education
- Clean water
- Better income for small producers
- Sustainable food supplies and improved land quality by 2030

Environmental dimensions:

- Soil Health – aim for one half of farmland not affected by degradation
- Water use – to draw down without counting rainfall as water being used
- Water quality – checking and controlling nitrogen levels in water due to excess fertilizer and drainage into creeks, streams, etc.

- Biodiversity – crop rotations from 1981 to now gives next to no erosion in Canada
- High carbon content in soil
- 30 years of progress on soil health

Canada has 25% of the world's fresh water resources. Irrigation is at 75% more efficient due to improved methods of putting water on crops. Water quality – 47% of Nitrogen put in is used by the plant; the balance shows up along with potassium and chlorophorms in water systems. Biodiversity results from adding more pulses to crop rotations. Canada is serious about being better than everyone with air quality, pollution reduction, etc.

- Heather Watson – Executive Director of Farm Management Canada

She hosted a panel to discuss Seven Management Practices driving the performance of farms. Panel consisted of Don from Luseland, SK. Hannah from Sage Bluff Farms, Calgary and Reg, a pharmacist and farmer. F.M.C (Farm Management Canada) started in 1992 – a group of farm business accountants and advisors. They have studied all types of farming including genders, ages and backgrounds. The Seven Management Practices to be Successful:

- Lifelong learning
- Make decisions based on financial data
- Employ business advisors
- Have written plans and review annually
- Monitor all cost of production
- Assess risks – plan to minimize risks
- Budget and financial plans – monitor financial positions

They have a website www.pledgetoplan.ca. The Agricultural Excellence Conference will be in Winnipeg, November 26-28, 2018.

- Prime Minister Steven Harper – 22nd Premier of Canada. 3 terms – 2006, 2008, 2011. Economist and Computer Programmer

He began with a story about an 11 year old girl who was to introduce him. She started by saying her mother said not to be too long and boring – I was to introduce the person to do that. He talked about the importance of the Agricultural sector to Canada – rural Canada is not a museum piece, there are markets, innovation and trade. Canada had traded with 4 countries for most of our trade when he took office and with 51 countries when he left. His government ended the monopoly of the Wheat Board. He is now Chairman of Global Marketing Inc. He said the Technical Revolution explains a lot – even the collapse of the Soviet Union (good or bad) and communication is available to almost everyone immediately. The forces that brought down the SU are working all over the world – networking and social media can have extreme effects such as the rise of Islamic states.

Canada is not immune to wrecks and it is crucial to track runaway spending. He is happy with the Trans Pacific Partnership and the modern means of communication is a protection against political volatility.

He was asked – "If you were to attend a town hall meeting that Justin Trudeau was hosting, what would you ask him?"

After thinking a moment, his reply was "It is highly unlikely that would happen but if it did, I would not ask political questions but rather how he is personally adapting to his office and how his family was faring." I thought this was an excellent reply drawing on his years of experience.

Farm Tech was an excellent experience.

Beef Sustainability - Peace Country Beef and Forage Association
February 8, 2018
Fairview, Alberta

By: Garry Candy

Garry Candy

This meeting was about raising the best meat animals and achieving and retaining meat markets.

- Dr. Susan Markus – PHD in Agriculture and Livestock – Breeding

  Dr. Markus is a professor at the University of Alberta and plays an active part with her husband on their ranch at Castor. She spoke about Hybrid Vigor which is cross breeding by DNA Research to obtain the best animal for carcass quality and profit. She spoke of the value of DNA testing to ensure that you are getting what you want when buying replacement heifers, cows or bulls. Crossing blacks and Herefords will give you a black baldy with a high hybrid vigor score – not as high as it could be but very good. She also mentioned other breeds and pointed out that the first calves will be high but then selecting the bulls becomes necessary to maintain the high score. All the animals in Ireland are entered into a data base. Her comment was that you have to have accurate records to plan what to do next. Her website is www.myherdandme.com It appears to be under construction. She also maintains that just because you have one half Angus and Hereford heifer and breed to Simmental that you do not necessarily get equal traits in the calf. The result of cross breeding two purebreds is an F1 cross. If you keep breeding this one the same, you will lose Hybrid Vigor and approach purebred animals again with a lower score. She has a lot of valuable information – unfortunately for all producers this means a lot of record keeping but this tied into what the next speakers were advertising.

- Deborah Wilson – Senior Vice President of BIXS – Beef Information Exchange System – www.BIXSco.com

  Deb as she prefers to be called works in Edmonton and ranches with her large family at Warburg. She spoke on creating and maintaining a healthy, sustainable supply of beef for anywhere. She stressed the importance of how the public and other countries can be assured of what they are buying and consuming. BIXS was formed to create ways of tracking beef from the farm to the plate with an extensive data base. As with any information gathering system it is only as good as the info entered into it. This all ties together with cattle identification and grading of meat quality; tracing from the producer to the buyer – feedlots, etc. and from there to packers, processors and retailers. Canada has become respected worldwide for its food safety – www.foodintegrity.ca People will pay more for products that are safe and brag about affording them. One in five consumers trust labelling on food and want more transparency. Drops in consumer

confidence can be due to Government, Media, Business and NGOs, however, the only one that can make a positive difference is Business.

- Monica Hadarits – Masters in Research – Natural Resources and Climate in Agriculture

  Monica sits on the Canadian Round Table for Sustainable Beef. 7% of people think they know about food and farming while 93% do not and feel vulnerable. 60% want to know more about farming practices.
  Question – Is Canada approach to sustainable products on the right or wrong track?

  - 43% think right track
  - 14% think wrong track

  Natural Resources, People-Animal Health, Food, Efficiency and Innovation all connect to accomplish Economic Viability. Beef producers manage a lot of land and leadership best practices and sustainable production all are in play. Four rounds of public involvement have been held; all questions and concerns were addressed and through this, trust was gained: www.crsb.ca

- Emily Murray – An American working for Cargil and dealing with McDonalds, Cara, Loblaws and many other chains.

  She is involved with the Cargill plant at Spruce Grove which processed meats for fast food – hamburgers, etc. McDonalds and Cara and the USA are the largest purchasers of Cargill products. In order to have a sustainable supply of the type of meat required, there has to be an assurance of producers as to record keeping along with good practices from the farm to the end user. They are building virtual goggles so people can see the operations of cattle producers, feedlots and even processing plants. A ouple of quotes she had:

  - Even if you are on the right track, do not just sit there or you will get run over
  - Nothing you cannot spell will ever work

  The goal is to deliver an adequate supply and to create the demand. They are running a pilot project and offering credits down the line; three steps to joining the pilot project:

  - Be a registered producer
  - BIX member
  - Age verify all animals

- Melissa Downing – Verified Beef Producer

She ranches with her husband and young family east of Red Deer, almost into Saskatchewan. She has recommends:

- a code of practice for beef producers,
- on farm food and safety training (online or in workshops)
- record keeping – birth dates, types of medications (vitamins, antibiotics, etc.) dates and amounts
- documentation of improved types of animal care in handling, transportation, etc.
- Bio-Security – TB and BSE testing

www.verifiedbeefproductionplus.ca – cost to join an on farm audit is $650.00.

This was a worthwhile conference and is the way of the future for marketing our products.

Winter Watering Systems Tour - Peace Country Beef and Forage Association
February 10, 2018
Wanham, Alberta

Garry Candy

Having met at the Wanham hall, we had coffee and then loaded into the bus. The tour itself was at three locations.

- Birch Hills Colony

  We saw two types of watering systems – the first was a large (approximately 8 feet in diameter tank) built by Barrhead Plastics. It has four openings for animals to reach – in the centre was a 24 inch culvert that went down approximately 20 feet to connect with a water line (drill stem) bringing water by gravity feed from the dugout. There is a submersible pump that is powered by a 24 volt supply solar system. The water is controlled by a float and valve. The tank had adequate insulation so that only the water holes would freeze to a depth of about 3 inches. It still has to be maintained daily and supplies water for 280 head.

  The second system at the Birch Hills Colony is much the same with water coming horizontally from the dugout to a 24 inch culvert. The tank in this case is a tractor tire – it has a continuous 24 volt pump and the excess water is drained to the 24 inch culvert. This still allows a small amount of ice to form which necessitates daily monitoring.

- Mike Reimers

  Mike has the same type of supply with a line underground to a vertical pipe and a submersible pump is powered by a 24 volt solar system. The water bowl itself is a tapered container or cone set into the top of the vertical pipe. When we first walked up, I thought it was not working but then triggered the eye and water came up into the tapered cone. It pumped for a few seconds then shut off when the eye was unobstructed and drained back to the supply as with any over flow. This unit is handling about 100 head and is capable of more capacity if required.

- Murray Sorenson

  Murray has what is called a thermo sink – energy free stock watering system supplied by UFA. He has a double unit to accommodate up to 200 head. The unit needs to have water under pressure to it. This system has 3 vertical pipes – the outside two for the animals. Where the animals drink are tapered bowls (removable for cleaning). The centre pipe has the water line with a float and valve assembly and serves as water storage. There is a circulation pipe between the three tubes. Although there appears to be a great deal of insulation around each pipe, it may require daily monitoring for ice buildup. He waters about 150 head with this system.

The three hosts were excellent in taking the time to plow snow so that the bus could drive to the waterers and the time out of their busy days to talk to us, explaining their systems and answering our questions. When we arrived back at the hall, Codi Lee spoke of the importance of having a farm plan in place before April 1, 2018 at midnight as there will be money in the form of free grants available. Check out www.agalberta.ca/leap

Agricultural Service Board Provincial Conference

By: Brian Harcourt

Finding Fairness in Farm Transition.
Speaker...Elaine Froese..

A farmer for many years and gained an ability
to help neighbor farm families understand the issues
confronting them over the sale of or partnering
with others in the family.
Her fame began to spread and she now travels
across Canada and to many countries world wide.
If you would like some advice or just talk call,
1 204 534 7466.

Speaker, Doug Macaulay, ASB Member's Orientation.

Doug gave an update of the ASB Grant Program, the ASB
Opportunity Fund and Fieldman courses.
A little history of how the ASBs come to be.
In 1872 the Dominion Land Act was legislated,
population was about 800,000 people.
1901 to 1931 farm equipment gradually became a part
of farm life and of course getting better every year.
Railways slowly made their way west and the rule of thumb
was that there should be a grain elevator about every 6 miles apart.
During the Thirties not much happened because of the severe drought,
add weeds, dust and rats.
1943, two central AB counties with some local prominent farmers
and some of the local MLAs got together to discuss the situation.
An ASB pilot program was the result.
1944, legislation was passed with authority
over Soil, Pests, Weeds and Animal health.
1945, 50 counties, MDs and IDs formed their boards.
Today every County and MD and Special Area has a Board.

Speaker...Michelle Stirling.
Communications Manager for Friends of Science Society.

She specializes advertising, film and career development.
She spent 10 years in Israel to study their advancements

in software,desalination of sea water and agriculture in the desert.
She ultimately became interested in climate change.
"Climate Change" is real!!
The test models say yes but the data casts doubt.
Test models may be over sensitive.
Coal plants in AB are "hi efficient type"
low emissions, providing power at 2cents per Kw/h.
No coal plants, electricity will triple in price.
But...Plants and crops take up CO2.

Speaker..Bruno Wiskel..The Joy of Ranching..

Double your Profit.

Some suggestions from Bruno..
Bruno farms north central Alberta.
His vineyard has apples, apricots,plums, pears
raspberries, strawberries, saskatoons, a garden center,
tree nursery, 250 acre woodlot, 75 head cow/calf op.
Never pay more than 4cents a pound for hay.
To make changes use the 5% rule.
5% up or down can make all the difference.
Make a change when plan "A" does work anymore.
Have a plan B and C in place.
Calve during mid July and August, best nutrition in the forage.
No frozen ears etc.
Rent bulls, no fights, less cost in feed or health risks.
Bale graze 30 feet apart.
Alternate grass,alfalfa, and straw options.
5 day max grazing in paddocks.
Add Reed Canary grass in your cocktail mixtures.

Jim Hole..Cool Green Living.

Son of Lt Governor Lois Hole.
Jim gave an interesting update on the family history.
He operates the family greenhouse and garden center St Albert AB.
He has written several books and has a newspaper column
and also is on the CBC radio phone-in program.
He has a Bachelor of Science degree in Agriculture from U of A.

Speaker...Dr. Christina Eynck.

Camelina..cousin to canola also called "false Flax".
It has a short growing season,frost and drought resistance
good yield also resistant to pests and diseases
flea beetles,black leg, shatter resistant,
and a unique fatty acid profile.
Current variety name is "Midas".
A new variety is called 13c50088-7.
Testing is ongoing to increase seed size.
No need for seed treatment.
Shallow seeding but at least into moisture.
Check out more info at---smartearth .com

Speaker Brad Osadczuk...TB Outbreak

Brad is a board member of The Alberta Beef Producers.
This problem started on a ranch near Jenner in Sept, 2016.
Oct. 17th, testing began on neighboring ranches.
Over 3000 head on 79 ranches were tested.
Owners were ordered to transport their cattle to the nearest
slaughter facility and they had to pay the trucking
and the costs of slaughter!
Over 11000 animals were put down.

Provincial Agricultural Service Board Conference
By: Julie Watchorn
Tuesday January 16, 2018 –

We arrived at the conference, which was held in Evergreen Park at Grande Prairie Ab at 4pm, registered and walked through the trade show, which included booths by:
Clean Farms
Fortis Alberta
Equs
Ufa
Degelman
Farm Safety Center
Land Stewardship Center
Empower Energy
Highline Manufacturing LTD
Martin Deerline
Animal Damage Control
Landview Drones
Gateway Research Organization
AgSafe Alberta
Animal Farm Animal Care
Alberta Invasive Species Council
Farmers Advocate
Heart of the Peace Gourmet Foods
Peace Country Beef and Forge Association
Cows and Fish
ALUS-Canada
Agroforestry & Woodlot Extension Society
SARDA- Ag Research
Strathcona County
HCL
I apologize to any I've missed!

The Master of Ceremonies introduced himself,
Peter Brown is a host and producer with CBC Radio in Edmonton.

Peter gave the Welcome to start off the entertainment, which was **Carl Delorme, Metis Fiddler**

Wednesday January 17 2018

Peter Brown went through the Welcomes and Greetings of the AAAMDC President, ASB Provincial Committee Chair, County of GP Reeve, AAAF President

Elaine Armagost sang the National Anthem

Doug Macaulay was the first speaker of the day History of the ASB
In 1872-1931 we had the Dominion Act
They gave away 118 million acres
1.5 million homesteads
In 1943, they had the first pilot project for ASB
The ABS received $1000 from Alberta Agriculture
And the board had to have -2 farm members
-2 councillors
- District Agriculturist

ASB board had 4 Acts:
1-Pest Act
2-Weed Control Act
3-Soil Conservation Act
4- Animal Health Act

Elaine Froese- <u>Finding Fairness in Farm Transition</u>
What does fairness mean to you?
F- financial transparency
A-attitudes
I-intent
R-role expectations
I think...
I feel...
I need...
I want...
Finances- what's your personal wealth bubble
Debt service
How much? Are you gifting or are they buying?

What is fair DNA pay??
Money does not equal LOVE!
What legacy are you leaving?
You can hear more about Elaine Froese on **Agrawebinar.com** and read her **articles in Grain News** and on her blog at **ElaineFroese.com**
Phone # 1-866-848-8311

Michelle Stirling –Climate Plant and Coal Phase-Out Implications
Climate change is real but became an obsession when Al Gore brought his movie out in 2006
Everyone agrees that there has been global warming since 1860
Can't model clouds which are important in climate change
Can't use computer generated models for real life
Social cost of carbon- Carbon taxes are paid now to pay for future damage
Can get more information on Michelle's topic
Dr. Ross McKitrick- YouTube
www.friendsofscience.org
www.curryja.files.wordpress.com

Christina Eynck, PhD: Camelina Update on Agronomy, Breeding and potential for the Peace River Region

Camelina is a short season oilseed crop grows from 85-100 days
Is also called German Sesame
Have high yields
Is resistant to Brassica pests and diseases
29.1% protein
Good ration of omega 3/6
Can be used for animal and human nutrition
Smart Earth Seeds distributer
Midas is one popular variety that would do well in the Peace Country
The seed itself is ½ the size of Canola so harder to combine and usually straight cut combined
Seeded at 6-7 lbs./acre ¼" - ½ " depth best if broadcast and heavy harrowed in
The Greatest Gift That Can Be Rendered To Its Country Is To Add A Useful Plant To Its Culture

Thomas Jefferson

Christina.Eynck@AGR.GC.CA

Bruno Wiskel: The Joy of Ranching –Doubling your Cow/Calf Profits

The average cowherd is 63 in Alberta
Top 3 Breeds:
- Angus
- Simmental
- Charolais

To increase your revenue and to decrease your expenses:
-Timing of sales
-Selling by-products from the farm
-Breeds
-Branding
-Payment foe Ecosystem services
Calve in August
Sell manure off the farm
Don't brand your animals –get better price for hides
Sell your 800 lb. calves end of August for best prices
Bale graze- your not starting tractors everyday
Rent your bulls – most people are done with them
Always have Plan B and C and D and E etc. don't just stick to one thing change if it doesn't work
Bruno@mrus.net

Before The Plate –The Farmers Story
We were shown a trailer for a new movie that is being made in Canada, Produced by **Dylan Sher** and Directed by **Sagi Kahane-Repport.**
This film is to bring attention to farming practices and where our food comes from and how it gets to our plate
Looking for donations
www.beforetheplate.com

Thursday January 18 2018

Dr. Jan Slaski Ph.D., M.Sc. – Industrial Hemp – New Opportunities **for Diversification of Farmers Income and Cropping Options in the Peace Country**

Hemp originated in Central Asia 6500 years ago
THC- is 30% or more
Industrial Hemp- THC levels are .3%
Grain type-Short, High seed yield
Fibre type – Very tall, high stem yield
Hemp is one of the fastest growing plants. It has a growth rate 15cm per day up to 5m!
In Canada 1606-1801 Industrial Hemp was very popular. Making clothes, rope, paper and oil. In the 19th Century the Hemp market collapsed because of new plants such as cotton, jute and wood processed paper pulp
In 1938-80s- Narcotic Drug Act
1998- it became legal to grow hemp after 60-year ban
InnoTech – Silesia is the best variety for fibre
Hemp doesn't tolerate poor drainage, compact soils
Seed shallow but in the moisture
40-60-kg/ha fibres
20-25 kg/ha seed
Hemp is short day plant, long days delay flowering
In the Peace Country you would get tall plants
Similar to Canola with pests and diseases
Fairly resistant to frost -5
Vegraville has the only processing plant in Alberta where it processes the fibre
Drayton Valley factory makes snowboards, skateboards, furniture, tractor hoods etc.
Just Bio Fibre- building blocks have an R-value 27 and 1 hr. fire safety (could not get them to burn after an hour)
Hemp Oil- Body Shop

Jim Hole-Cool Green Living

Jim Hole is one of the owners of Hole's Greenhouse in St. Albert. He talked about what's 'In' in plants and gardening

Local & Urban farming
Healthy Eating
Fulfilment
Small Space Gardening
Vertical Gardening

We have to start eating our ugly vegetables, that's from in the store there is so much waste because people like eating pretty things
We have to use heirloom vegetables and seeds
Start using micro greens put up a light in a small corner grow them year round
LED lights are a good thing now, cheaper to run
Home Canning
Drought resistant plants outdoors to save on water

Yucca – very drought resistant
Mallard- Grass seed sold by PickSeed drought tolerant

Compost- watch where you get it 4% of compost is contaminated
Insects are good. I finally found out that litte hoverfly that looks like a very small wasp is called a Syrphid! Very good to have great beneficial insects to control the bad ones ex: aphids
Alyssum- is a little white or purple flower that attracts beneficial insects
Kids need to garden!! They need to get dirty ...
You don't have to be great to start, but you have to start to be great
www.holesonline.com

Nancy Lowery-Everything I learned About Managing Projects, I Learned From A Horse

- It's how you listen and how you treat others
- To hear Patterns
- With Intention
- To Filter

Embrace Simple...
One simple thing to do is Whoa
Just stop and breath the day will get better
Observe Remember Compare

www.thenaturalleader.ca

Brad Osadczuk: Bovine TB Outbreak

Brad Osadczuk is from Jenner Alberta. That alone would give pause, if any of you had a herd of cattle you have heard of Jenner.
Brad's herd of cattle were the ones that originally had the first cow to test positive for TB. He had cattle in 2 community pastures and in Saskatchewan. One of his cattle that were shipped ended up in the USA and was tested positive that's how they found out. The CFIA (Canadian Food and Inspection Agency) knocked on their door and quarantined his herd. He was told that it was a Mexican strain of TB, which had never been tested positive in Canada ever. In 1997 it was in Central Mexico

In the end 6 cows tested positive ...
1200 cows
1200 calves
53 bulls in total from his ranch were slaughtered
11,000 animals from his community were slaughtered
They still have no idea how this happened
Side note: they treated these people like criminals, slaughtered animals and we in Alberta have the largest free roaming herd of wood bison that are tested positive for TB...
Brad serves on the Special Areas Board and Ag. Service Board in his community. Actively involved with Alberta Beef Producers sitting on the board as a director, also on the board of the Suffield Grazing Co-op. He has rebuilt his herd.
@bradosadczuk Twitter

Friday, January 19, 2018

Doug Macaulay -

Talked on changes of the Agricultural Development Funds
Check out Growing Forward 2website for any news and changes
Doug.macauly@gov.ab.ca

He also talked about Bug Round-up

Alberta Insect Pest- monitoring network
Berth Armyworms –NE Central Alberta
Grasshoppers hatch every 2 years, that's why you see the locust every other year

Look at the insect maps also on Growing Forward 2

Building Soil Health –Kevin R. Elmy, P. Ag
By: Julie Watchorn

Thursday, February 1, 2018 Rycroft, Ab

Soil Health
-Most people have no idea what it is

Diverse population of organisms in it
Food sources are carbon based
Less tillage
Keep living plants through growing season
Build organic matter
Promote more microbes in soil
More diverse rotation

Primary Feeders- Bacteria
Fungi
Primary Predators- Protozoa
Amoeba
Earthworms
Mites
Beetles
Spiders
Earthworms: dig a 15 cm by 15cm square hole and count the earthworms, you should have 5 worms in healthy soil
With earthworms some people hate them, but the trick is to keep putting fibre back into your soil to keep it from turning to cement. With most gardens you keep taking matter off but not putting it back that's where you get troubles with your garden

When biology is in balance soil takes care of it self. Plants have
-less stress
-less disease

-high-density nutrient grain

Bacterial Soil –

Simple weeds like wild oats and cleavers grow
Erosion
Poor water infiltration
Hydrophobic

Fungal Soil-

Heavy organic matter
Woody plants are present
Little disturbance
Stable

1% increase in organic matter is an extra 1"of stored rain in the soil

Cover Crops:

Lots of uses

Opportunity to fix issues
Add diversity to rotation
- plow down crop
- nitrogen fixing crop
- nurse crop
- hay/grazing
-smother crop

Goals

-break up hardpan
-Fix Nitrogen
-smother weeds
-produce animal feed

Grass, Legume, Broadleaf, Brassica, Non-Brassica and Forb blends

Grass: Lots of tonnage
Mycorrhizal support
Ex: Millet, Sorghum and Corn
Legume: Fixes N (to use itself)
Weak root
Ex: Hairy Vetch, Crimson Clover, Peas and Lentils
Broadleaf: Diverse
Tend to scavenge nutrients
Vit. E
Ex: Turnip, Radish and Buckwheat
Forbs: Adds lots of diversity
Specialized plants
Ex: Phacelia and sunflowers

3 local producers talked about their learnings with cover crops

Robbie Hale: Started in 2014 with his Family in Hines Creek, Ab

- need a 5-way blend at least
- see what grows in drought, don't plant seeds that need lots of rain; its not always a sure thing
- They seed Crimson clover, Sunflower, Hairy vetch, Triticale and Oats
- Watch your mixes for grazing; high nitrates

Conrad Dolen: Started in 2016 with his Family at Fourth Creek, Ab

- reduces fertilizers
- grow more feed
- increase soil biodiversity
- 60 cow days swath grazing

- Blend #1 forage Peas, Hairy vetch, Crimson clover, Rye grass annual and Oats
- Blend#2 field Peas, Oats, Barley, Sunflower, Hairy vetch, forage rape and crimson clover
- Blend#3 Oats, Barley and Peas

Allen and Kaitlin McLachlan: Started as a Family also in 2016

- Needed to increase tonnage of feed
- Weed control
- Bring down fertilizer bill
- Their blends #1 1/3 peas
  1/3 barley
  1/3 triticale
  Blend #2 Crimson clover, Bayou kale, Oats, Barley, Hairy vetch and Italian rye grass

For so much more information use **Google** –USDA cover crops or cover crops and follow the links
You Tube has hours of video to watch Gabe Brown and Clayton Robins is good to see
There is so much to learn about the benefits of cover crops going to seminars such as this is a wonderful start!

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