

# INFARMATION

Yukon Agriculture Branch Quarterly Bulletin

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## DEFY WINTER: PREPARE TO PLANT!

Because Yukon has such a short growing season, some plants are better started in greenhouses or indoors. Seeds can be started in almost any available container providing there is adequate drainage and it can hold 2.5 to 5 cm of starting medium. Square and rectangular flats do make better use of space. Containers or flats should be situated so the daytime temperature is between 18°C and 24°C and the nighttime temperature is between 10°C and 15°C. Containers can be used for many years if sanitized at the end of season. Cover the container with clear plastic or glass to retain moisture until the seed has germinated.



Seeds contain enough nutrients to nourish themselves through germination. Some seeds, such as tomatoes or peppers, should not be planted directly in garden soil. Garden soils tend to be too heavy for seedling roots to penetrate. Lighter growing mediums containing vermiculite, perlite, milled sphagnum moss, peat moss, and/or compost are preferred until the seedlings develop their first true leaves. Seeds in flats should be planted at least 1.3 cm apart. Once the first true leaves appear, nutrients can be applied using a water soluble fertilizer.

Pay particular attention to watering container plants. Containers can dry out very quickly because the volume of soil is relatively small. Apply water until it runs out the drainage holes, but be careful as the soil should never be soggy or have standing water on top of it.

About ten days before transplanting your indoor seedlings into your garden, begin the process of hardening off. This is the gradual

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## MESSAGE FROM THE AGRICULTURE BRANCH

There has been a lot of activity in Yukon agriculture over the past winter on projects, new programs and courses that will help farmers, food processors and consumers access local products this year.

To begin with, Kirsten Scott at the Yukon Agriculture Association has been working to update the Yukon Farm Products and Services Guide. The print version of the Guide was last updated in 2008 so this will be a welcomed publication for consumers looking to source Yukon agricultural products and services. The guide should be available in time for this summer.

Representatives from several Yukon agricultural organizations have been working with the Agriculture Branch this winter to shape the new programs to be offered under the Canada-Yukon Growing Forward 2 Agreement. The intent of Growing Forward 2 is to achieve a profitable, sustainable, competitive and innovative agriculture, agri-food and agri-products industry that is market-responsive, anticipates and adapts to changing circumstances, and is a major contributor to the well-being of Canadians. This new program is scheduled to be in effect

from April 2013 to March 2018. The program guide will be available at [www.agriculture.gov.yk.ca](http://www.agriculture.gov.yk.ca) or from the Agriculture Branch office later this spring.

For the first time ever there were two offerings of the Yukon Master Gardener course by Yukon College in partnership with the Agriculture Branch at the Whitehorse campus. Satellite campuses in Carcross, Carmacks, Pelly and Dawson have all expressed interest in future offerings of the course in their communities as well. Practical follow-up courses being offered this April through the college in Whitehorse include: Composting, Greenhouse Design, Soil Analysis, Container Gardening, Companion Planting and Landscape Planning throughout April. Call the Yukon College at (867) 668-5200 for details.

For poultry producers, a presentation on egg grading and the physical requirements for the construction of an egg grading facility will be held on March 23, at the Westmark Whitehorse. More information on this can be found in the announcements section on the last page of this newsletter.

The Agriculture Branch has been working on new planned agricultural land offerings in Haines Junction, the Ibx Valley and close to Gentian Lane south of Whitehorse this winter. Planning is also underway for new land sales in Sunnydale, Mayo and Marsh Lake as local area plans and community consultations wrap up.

And briefly, Growers of Organic Food Yukon have regrouped from being part of a national association to an independent local association this winter, the Fireweed Community Market Society reported a record high number of market vendors and visitors to the market in 2012 and the Yukon Young Farmers Group has joined the Agriculture Industry Advisory Committee providing the next generation of Yukon farmers with input into Yukon policies and programs that will affect them in the future.

Have a great spring everyone.

Tony Hill  
Director, Agriculture Branch

...continued from page 1.

introduction of seedlings to the outdoor environment to maximize transplant survival. Begin by reducing the indoor daytime temperature to 15°C and remove any coverings. On the first day outside, place flats in partial sun for two to three hours during the warmest part of the day. Each following day, increase the time outside by one hour and locate the flats in more direct sunlight. On the tenth day, the plants should be able to handle direct sun exposure for the full day. The seedlings are now ready to transplant.

*Text adapted from Yukon Gardeners Manual available at the Agriculture Branch for \$20.00.*

SEEDING DATES	WEEKS TO TRANSPLANT	VEGETABLES AND HERBS
March 16	11 Weeks	Celery, Chives, Leeks, Rosemary
March 23	10 Weeks	Oregano, Parsley, Peppers, Thyme, Tomatoes
March 30	9 Weeks	Brussel Sprouts
April 6	8 Weeks	Cucumbers, Tomatoes
April 20	6 Weeks	Basil, Lettuce, Taronon
April 27	5 Weeks	Broccoli, Cabbage, Cauliflower, Dill
May 3	4 Weeks	Winter Squash and Pumpkin, Zucchini

\* June 1<sup>st</sup> is the safe date to transplant most plants without risk of frost damage.

**THE CORNER L.O.T**  
(LANDS, OPPORTUNITIES & TIDBITS)  
LAND OPPORTUNITY

Agriculture Branch has an over-the-counter application opportunity for land in the Haines Junction planned agriculture area. Lot 1059-2 is still available for immediate application.

PUBLIC CONSULTATION STARTED ON AGRICULTURE DEVELOPMENT OF 500 HECTARES OF IBEX HAMLET LANDS

On February 20, 2013 Agriculture and Land Planning Branches met with the Ibex Hamlet Local Advisory Council to introduce a new agriculture project within the Hamlet. The proposed project is an agriculture development of approximately 500 hectares at kilometer 1362 to 1364 of the North Alaska Highway. Development of project options will take place between March and July. Rezoning of the parcel to agriculture and a Yukon Environmental and Socioeconomic Assessment Board review is required before any development work can commence. For more information on the proposed project and consultation, contact David Murray as listed below.



WE HAVE A WINNER - LOT 1136, EAST OF GENTIAN LANE

When the competition closed on February 1, 2013 eight Farm Development Business Plans were submitted for the development of a 5.6 ha non-soil based agriculture parcel south of Whitehorse. The Agriculture Branch was very impressed by the quality of the information submitted by all applicants. The lot has been offered to Darrin Sinclair for his project to produce 3,000 broilers by 2018.

For more information on agriculture land opportunities or the projects mentioned in *Corner L.O.T.*, call David Murray, Agriculture Lands Manager at 667-5838 or by email at david.murray@gov.yk.ca

## TAMING WILD FLOWERS

According to Environment Yukon, there are 1,242 species of plants known to grow in the territory. Many of these produce attractive, colourful flowers. Native forbs are already adapted to Yukon conditions and require less maintenance than commercial species. They have also developed defences to natural pests and can provide habitat and food for local insects. When contemplating which native flowers to grow there are a few factors to consider.

Most species have a relatively short blooming period and planting multiple species together that flower at different times is recommended. Keeping a record over the summer of which native plants in the surrounding landscape bloom may be helpful when making selections – be sure to include when they bloom as well. Be wary of roadside flowers as they may grow so well that they expand into areas where they are not wanted. If concerned, plant forbs with colonizing characteristics in a contained area separate from a cultivated garden. The feasibility of seed collection also influences flower selections. Legumes such as arctic lupine and sweet-vetch have large seeds in pods that are easy to collect. Non-legumes typically have smaller seeds, with some significantly more challenging to collect than others.

Plants adapt to local environments in many different, often subtle ways. Characteristics such as plant height and maturation dates vary from location to location depending on both physical and climatic conditions. The same species of plant from two different geographic regions are considered to be different “ecotypes”. By collecting seeds within 100 km of the planting site, the similar genetic makeup from the ecotype will enhance the seeds’ establishment and growth. Also be mindful, because the source of plants growing in disturbed sites can’t be determined, choosing seed from natural sites



Arctic Lupine, *Lupinus arcticus*



Northern Sweet Vetch, *Hedysarum boreale ssp. mackenziei*

is recommended. A seed collection best practice is to harvest no more than 50% of the seed within an area.

Legumes typically have easier seeds to collect than non-legumes. Pods can be hand-picked just before maturity and allowed to dry in a paper bag. The seeds can then be removed from the pods or some species’ pods explode on their own (lupine). It’s worth noting that insects at various life stages feed on seeds and a post-harvest examination for seed damage is recommended. Forbs with small seeds are more challenging and one method does not work for all species. A common practice is to clip seed heads just before maturity and let them mature in a paper bag. Seeds are then agitated (i.e. shake the bag vigorously) to separate the seed from the leftover plant material.

Even though Yukon species’ seeds are adapted to being frozen for long periods of time, storing the seeds in a dark, dry place at 0-5°C has been reported to be more effective for long term storage. The bags/boxes need to be breathable and clear labelling is also very helpful.

Seeds are covered with a protective coating to prevent decomposition in the soil. Many species need this coating damaged before they will germinate to allow water to absorb into the seed. This can be accomplished by either scraping or wetting the seed (scarification or stratification). The most effective method depends on the species. To scarify large seeds, shake the seeds inside a can or jar lined with sandpaper. For smaller seeds, a blender with the blades covered with tape can be pulsed to create agitation. Use an appropriate size screen to separate the plant material from the seed for best germination results. Stratification can be achieved by enveloping (but not sealing) seeds in a moist

environment at 1 - 3°C for at least a month. Damp moss, peat or vermiculite is often used provided it has been sterilized (baked in oven at 100°C for 30 min). Once the seed coat is damaged, the seeds are ready for planting.

Planting wildflower seed the season it is harvested is not recommended. Seedlings require the entire summer to prepare for the winter. This provides ample time to research a species' individual planting needs. An updated version of the Yukon Revegetation Manual is now available online and Chapter 4 contains more information on seed collection and detailed planting methods (see reference list below). There is also a website devoted entirely to North American native plant propagation – [www.nativeplantnetwork.org](http://www.nativeplantnetwork.org) – and individual species propagation methods can be searched. There is also a link listed for a more complete definition of an “ecotype” and how it affects plant selection. Good luck!



## COMING OF AGE

Growers of Organic Food Yukon (GOOFY) is now a stand-alone, non-profit society, registered in Yukon and reporting only to its members.

Since its beginning in 2003, GOOFY has been the voice, the forum and the support group for Yukon's organic growers, both commercial and self-feeding, both certified and uncertified. We have welcomed gardeners, consumers, activists and researchers who share our commitment to sustainable food production. This has not changed. What is new is GOOFY's reporting relationship.

Shortly after the group was formed, GOOFY became the Yukon chapter of Canadian Organic Growers (COG). There were obvious benefits to being members of such a well-established and active organization with a dozen regional chapters and members in all parts of the country. We supported and became part of a national network of growers and activists and our members received the excellent COG quarterly publication and other membership benefits.

But GOOFY's focus was, and is, on our unique local food scene. Our members are deeply involved in the Fireweed Community Market. We have ties to the Yukon Organic Processors Association, and the Yukon Slow Food movement. Our major legume research project was conceived locally and conducted by Yukoners on

## References:

Matheaus P and Omtzigt T. 2012. Yukon revegetation manual: practical approaches and methods [internet]. [Published online only] MPERG Document 2011-XX; [cited 2013 Jan 30]. 174 p. Available from: [http://www.yukoncollege.yk.ca/research/post/yukon\\_revegetation\\_manual\\_is\\_available\\_online](http://www.yukoncollege.yk.ca/research/post/yukon_revegetation_manual_is_available_online)

Natural Resource Conservation Science Technical Note No. TX-PM-10-05: What are plant ecotypes [internet]. 2010. What are plant ecotypes. Kingsville (TX): United States Department of Agriculture; [cited 2013 Jan 30]. 2 p. Available from: [http://www.tx.nrcs.usda.gov/technical/pmc/docs/tx\\_pm\\_10\\_05.pdf](http://www.tx.nrcs.usda.gov/technical/pmc/docs/tx_pm_10_05.pdf)

Propagation protocol database [internet]. 2009. [Place of publication unknown]: Native Plant Network; [cited 2013 Jan 30]. Available from: <http://www.nativeplantnetwork.org/Network/>

Yukon farms. And as the years went by, the inevitable strains of being part of, and governed by, a large, far-flung organization began to make themselves felt. Not to mention that GOOFY has other national connections. We are the Yukon's voice on the Organic Federation of Canada whose mandate is the recently adopted national organic standards. Our members are involved with Food Secure Canada and the Canadian Biotech Action Network.

So at the beginning of last year, GOOFY and COG shook hands and parted. In between growing food and raising animals, GOOFY people have spent the year fine-tuning the Society's by-laws, mission statement and work plan to give them a specifically Yukon touch. We are developing lots of good ideas for growing more and better Yukon food, including a “Kids on the Farm” program, greenhouse research, visiting speakers and, as always, lots of chances for one-on-one sharing.

Organic growing is on the move in Yukon and we invite every one who likes to grow or eat organic food to join us.

Our monthly meetings and other events are open to all. They are announced at

[www.organic.yukonfood.com](http://www.organic.yukonfood.com)

## GIVE THE POTATO A LITTLE SPACE...?

The guidelines for potato production recommend planting distance between potatoes of 31 cm (12"). The Agriculture Branch received observations from producers that increasing the distance between seeds appeared to increase the size of the potato without compromising yield. Similar trials at the University of Saskatchewan found that increasing spacing produced larger potatoes, but significantly less yield (Waterer et al. 2010). Another study by the University of California documented that the increase in potato size was consistent with an increase in in-row spacing (Wilson et al. 2011). No such study had been conducted North of 60° and in late May a spacing trial with Yukon Gold potatoes was initiated at two sites in the Whitehorse area: the Government of Yukon Research Farm and the Yukon Grain Farm. The two sites are within 15 km of each other, but produced different results.

### YUKON GRAIN FARM

Yukon Gold potatoes were planted at 31 cm and 62 cm (24") intervals and received identical management over the summer. Plants were harvested by hand on August 17, 2012 and tubers from each plant washed, weighed and sized by largest diameter.

S	2-5 cm
M	5-10 cm
L	>10 cm

There were significantly different growth patterns between the two



Potato field at the Yukon Grain Farm.

treatments. Plants spaced 62 cm apart produced 20 g heavier tubers on average than the plants spaced closer together.

The total potato yield was very similar, with the 62 cm spaced plants producing only 2.2 t/ha less than plants with an in-row spacing of 31 cm. Considering that 62 cm spacing uses only half the seed potatoes, the yield is very impressive. Figure 1 is a frequency distribution showing the count of potatoes in different weight classes between 0 and 200 g. It demonstrates the correlation between in-row spacing and tuber size.

### RESEARCH FARM

The spacing trial at the Research Farm added a third in-row spacing

of 47 cm (18"). Unlike at the Yukon Grain Farm, the potatoes were top killed by frost a month after the Yukon Grain Farm and harvested very late in the season – October 4. Increased spacing did create slightly larger tubers, but the total yield for 62 cm spaced potatoes was 24.9 t/ha compared to 38.6 t/ha at 31 cm spacing.

The total yield for the plants spaced 47 cm, however, was 36.0 t/ha and tubers were an average of 6 g heavier than plants with standard spacing. Considering only 2/3 of the seed potatoes are required and the individual weights of tubers are larger at 47 cm spacing, there may still be a net benefit despite the slightly lower yield.

The two sites were harvested at

Spacing (cm)	Average Individual Potato Weight (g)		Total Yield (t/ha)		Small Potato Yield (t/ha)		Medium Potato Yield (t/ha)	
	31	62	31	62	31	62	31	62
	61.7	82.9	22.1	19.9	4.1	2.1	18.0	17.8

**Table 1:** Potato yield and average individual potato weight at the Yukon Grain Farm.

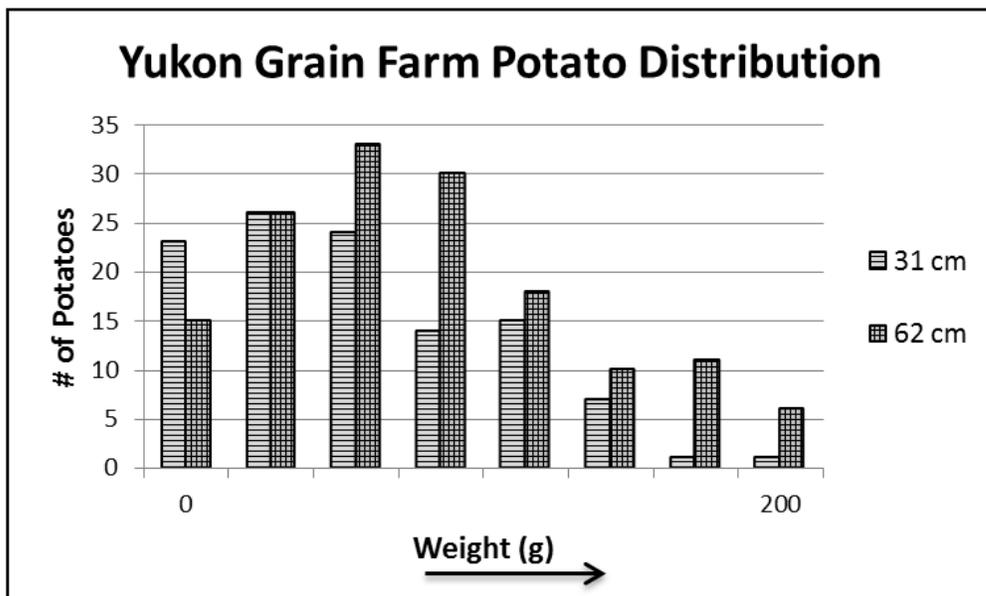


Figure 1. Individual potato weight distribution at the Yukon Grain Farm.

different times. At the Yukon Grain Farm the potatoes were harvested mid-August in accordance with normal commercial production timing. Leaving the potatoes in the ground until near freeze-up is not a strategy that will work for commercial production; top killing vines is generally required in order to allow time for skins to harden. This prevents skin tearing during harvest and handling. Nonetheless the tubers at the Research Farm were left in the ground until very late (October 4) to determine if a longer season would produce greater differences between spacing

treatments. As it turns out the longer season resulted in reduced differences between spacing.

Based on the single year of work it would appear that yields are only depressed slightly by wider spacing when harvested earlier and produce significantly larger potatoes. For a later harvest, the differences between spacing did not result in a larger gap between potato sizes. Spacing was clearly a limiting factor of tuber size at the Yukon Grain Farm. It was also warmer by 45 Effective Growing Degree Days (EGDD)\* which helps warm the soil producing larger potatoes

faster. Nutrients were optimized at both sites, indicating that over a commercial season, increasing the in-row spacing of potatoes has the potential to increase tuber size without compromising yield.

\*EGGD: A measure of the heat available to crops during the growing season that accounts for daily average temperature, daily length, and killing frosts.

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Waterer D, Szaroz P, Millar C, and Stockdale J. 2010. Vegetable and cultivar trails 2010 [internet]. Saskatoon (SK): Department of Plant Sciences, University of Saskatchewan; [cited 2012 Nov 27]. Available from: [www.usask.ca/agriculture/plantsci/vegetable/publication/VCCT2010.htm](http://www.usask.ca/agriculture/plantsci/vegetable/publication/VCCT2010.htm). Sponsored by: Agriculture Development Fund.

Wilson R, Kriby D, Kliwer B, and Nicholson K. 2011. The influence of seed spacing on potato variety yield and quality in 2011 [internet]. Tulelake (CA): University of California Intermountain Research and Extension Center; [cited 2012 Nov 28]. Research Report No. 136. Available from: [http://ucanr.edu/sites/Intermountain\\_REC/files/134598.pdf](http://ucanr.edu/sites/Intermountain_REC/files/134598.pdf)

Spacing (cm)	Average Individual Potato Weight (g)			Total Yield (t/ha)			Small Potato Yield (t/ha)			Medium Potato Yield (t/ha)		
	31	47	62	31	47	62	31	47	62	31	47	62
	85.8	90.8	91.9	38.6	36.0	24.9	2.3	1.7	1.5	34.9	26.2	23.1

Table 2: Potato yield and average individual potato weight at the Research Farm.



## HASKAP – THE FRUIT OF LONGEVITY



Borealis Haskap Berries

Photo: University of Saskatchewan

Alias: *Lonicera caerulea*, Blue Huckleberry, Honeyberry, Edible Honeysuckle, Hasukappu

Haskap is a deciduous shrub with northern berry producing potential. Though not native to Yukon, haskap is a circumboreal species found in most Canadian provinces, Russia, Japan, and many other countries. The closest relative to Haskap in the north is black twinberry, *Lonicera involucrata*, which is found in southeast Alaska and on rare occasions around Haines Junction. Do NOT eat twinberry – it doesn't taste anything like haskap and has a nasty habit of absorbing toxins from its surroundings making the berries poisonous.

Haskap is being championed as a hardy, tasty berry full of vitamin C and antioxidants. The flavour has been described as a combination of blueberry, raspberry and black currant. It is one of the earliest flowering plants in the boreal forest and open flowers are known to endure -7°C without damage. The berries are ripe around the same time as strawberries, depending on the variety and climate conditions. The berry itself is purple in colour and asymmetrically to symmetrically oblong. It is a highly valuable product in Japan and is known as the fruit of longevity for its nutritional content. In Canada the University of Saskatchewan (USASK) started studying haskap in 1998.

Five varieties have now been released by USASK with a combination of Russian, Japanese and Kuril Island genetics. They recently collected Canadian plants and are in the process of incorporating native genetics as well. The most popular variety for home gardeners

is Borealis (9-94). It has an exceptional taste and yield, but the berry is not firm enough for mechanical harvesting. A list of licensed propagators is available at: [www.fruit.usask.ca/propagators.html](http://www.fruit.usask.ca/propagators.html)

Commercial production of haskap is in its infancy in Canada, but more and more farms are investing time, effort and capital into the berry's production. LaHave Forests recently received recognition for their efforts in introducing haskap to Nova Scotia. Their story is featured in the December 2012/January 2013 issue of Canadian Farm Manager Magazine. There are only 300 acres in commercial production of haskap in all of North America and the "how to" of growing haskap is still being developed (Canadian Farm Manager December 2012/January 2013a).

Why try haskap? With a great taste and hardy disposition, the berry has been cultivated to yield a commercially viable crop. It is tolerant of cold winter temperatures and doesn't grow well in warm climates – less competition for the northern grower. As an early berry, they are available before most other berry harvests and freeze well. Haskap has yet to have any serious pests associated with it, however, local birds have been known to like it as much as their human counterparts. ½" netting is often required to protect plants from unpermitted avian harvesting.

The University of Saskatchewan has a number of resources available to help understand this crop. Haskap looks to be a great option for Yukon berry orchards with high yields and cold hardiness suitable for our northern climate.

## REFERENCES

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<http://lonicera-conference.narod.ru/articles/Bors.pdf>

Bors B. n.d. Growing haskap in Canada [Internet]. University of Saskatchewan (SK): [cited 2013 Feb 04]. Available from: <http://www.fruit.usask.ca/articles/growinghaskapinCanada.pdf>

Canadian Farm Manager. December 2012/January 2013a. A bright future but a long road ahead. 10-11.

Canadian Farm Manager. December 2012/January 2013b. Haskap growers chart their own course to the big time. 4-5, 9.



## THE 8<sup>TH</sup> CIRCUMPOLAR AGRICULTURAL CONFERENCE AND UARCTIC INAUGURAL FOOD SUMMIT

SEPTEMBER 29 – OCTOBER 3, 2013 AT HOTEL ALYESKA, GIRWOOD, ALASKA

### CALL FOR ABSTRACTS

Conference Theme: Advancing food security and sustainable agriculture in the circumpolar north; Building an integrated vision and creating a process for sustainable food security in northern communities.

Interested parties are invited to submit abstracts for poster presentation. They are seeking abstracts for posters relevant to all aspects of circumpolar agriculture and food security in the north. The conference will consist of invited plenary talks organized around featured topic followed by formal poster sessions where presenters will provide a brief overview of the content and purpose of their poster to organized groups. The discussion generated will continue into a series of breakout sessions organized around the following objectives:

1. Educating world leaders on the critical nature of food supplies in the Circumpolar North;
2. Encouraging the exchange of information, material, and technology of agriculture and rural development in circumpolar areas;
3. Establishing and maintaining relationships with other organizations whose interests are related to the objectives of the Circumpolar Agriculture Association and the thematic network on northern food security of the University of the Arctic, and;
4. Discussing and defining the barriers, challenges, and opportunities of expanding the regional food economy.

The Summit adopts the perspective that food security is a driver to community development and sustainability. It will take a balanced approach between agricultural production and traditional subsistence natural resources access. This Summit bridges the diverse but common key areas to support, strengthen, and expand food resources and northern community development.

INTERESTED IN PARTICIPATING IN THE NEXT CIRCUMPOLAR AGRICULTURE CONFERENCE?

Watch for funding opportunities through the Government of Canada and Government of Yukon in the near future.

Abstracts should address the barriers/challenges and develop solutions/opportunities across key critical areas, such as:

1. Food Production
2. Food Access and distribution systems
3. Sustainable Practices
4. Land Use Planning
5. Food Policy and Food Safety issues

They want to encourage a wide range of applicable topics. If you are uncertain as to the applicability of a topic please don't hesitate to contact:

Milan Shipka at [mpshipka@alaska.edu](mailto:mpshipka@alaska.edu) or Karen Tanino at [Karen.tanino@usask.ca](mailto:Karen.tanino@usask.ca)

Abstracts must be 300 words or less, written in English, include an objective, brief methodology (if applicable), results and discussion. Poster presentations should stimulate discussion and interaction across borders and disciplinary boundaries. If English is not your native language, then the reviewing committee respectfully suggest that you seek out an English speaking review prior to submitting the abstract.

Abstracts must be submitted online at <http://www.uaf.edu/cac/call-for-abstracts/> by April 5, 2013. Author notification of abstract acceptance will be provided by e-mail prior to April 30, 2013.

### Energy, Mines and Resources Library Open House for Adult Learners

Wednesday, April 17

12 – 3 p.m.

335-300 Main St., 3<sup>rd</sup> floor, Elijah Smith Building

Discover thousands of maps, air photos, books and more while enjoying light refreshments. Everyone interested in agriculture, circumpolar studies, composting, forestry, geology, mining, remediation, and other earth science topics, are welcome to see what the library has to offer.

For more information, call 667-3111 or visit us online.

[www.emr.gov.yk.ca/library/](http://www.emr.gov.yk.ca/library/)



SPRING 2013 INFARMATION CROSSWORD PUZZLE

Try your hand at solving this spring's agriculture crossword puzzle. Fill in the numbered boxes to the right with your answers to the definitions below. You'll find the answer key on the back of this newsletter.

Good luck!

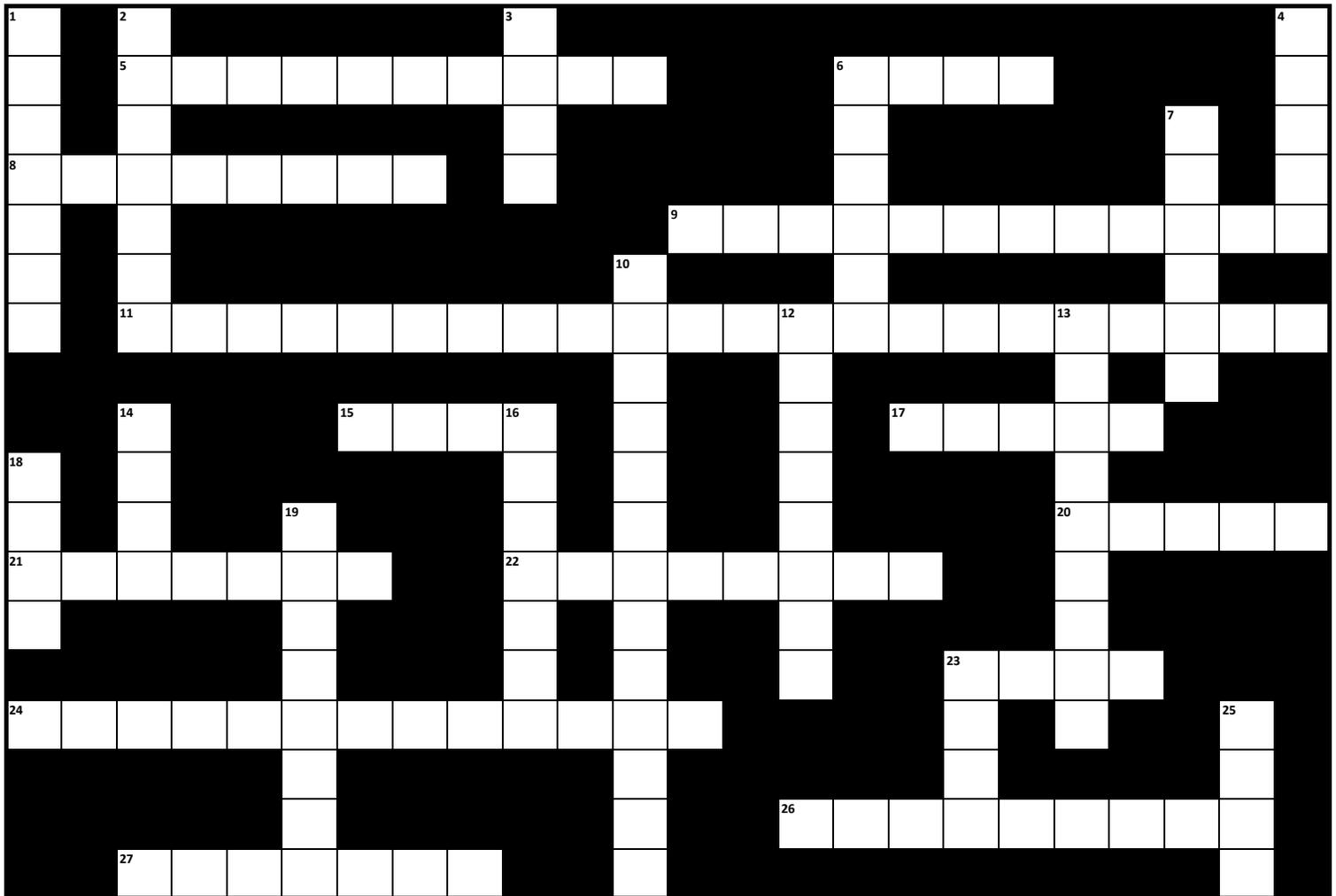
DOWN

1. A soil consistency term pertaining to soils that crumble with ease
2. Growing only in the presence of molecular oxygen, as \_\_\_\_\_ organisms
3. The textural-class name for soil having a moderate amount of sand, silt, and clay
4. The smallest volume that can be called a soil
6. A non-sodic soil containing sufficient soluble salts to impair its productivity
7. A soil temperature class with mean annual temperatures below 8°C (hint: think "cold")
10. Bacteria specially adapted to colonizing the surface of plant roots and the soil immediately around plant roots
12. A yellow brown iron oxide mineral that accounts for the brown colour in many soils
13. Any material that is worked into the soil to make it more amenable to plant growth
14. A dynamic natural body composed of mineral and organic solids, gases, liquids and living organisms which can serve as a medium for plant growth
16. The mechanical manipulation of soil for any purpose; but in agriculture it is usually restricted to modifying of soil conditions for crop production
18. Highly decomposed organic material in which the original plant parts are not recognizable
19. Soil pores created by plant roots, earthworms or other soil organisms
23. Unconsolidated soil material consisting largely of undecomposed, or only slightly decomposed organic matter accumulated under conditions of excessive moisture
25. A soil separate consisting of particles <0.002 mm in equivalent diameter

ACROSS

5. The science that deals with the influence of soils on living things, particularly plants, including human use of land for plant growth
6. A soil particle between 0.05 and 2.0 mm in diameter
8. The surface horizon of a mineral soil having maximum organic matter accumulation, maximum biological activity, and /or eluviation of materials such as iron and aluminum oxides and silicate clays
9. The downward entry of water into the soil
11. The sum total of exchangeable cations that a soil can absorb
15. A soil separate consisting of particles between 0.05 and 0.002 mm in equivalent diameter
17. A tool used to bore small holes up to several metres deep in soils in order to bring up samples of material from various soil layers
20. To lose water from the soil by percolation
21. Organic and inorganic material with very small particle size and correspondingly large surface area per mass
22. The removal of materials in solution from the soil by percolating water
23. Horizons or layers in the soil that are strongly compacted, indurated, or very high in clay content.
24. A group of organisms intermediate between the bacteria and the true fungi that usually produce a characteristic branched mycelium
26. A former animal burrow in one soil horizon that has been filled with organic matter or material from another horizon
27. The wearing away of the land surface by running water, wind, ice, or other geological agents, including such processes as gravitational creep

\*Definitions from The Nature and Properties of Soils (13th Ed.) by Nyle C. Brady and Ray R. Weil



## PURCHASING LOCAL MEAT PRODUCTS

Each year the Agriculture Branch fields numerous calls from individuals searching for local grown meat and produce to purchase.

By late winter, most Yukon farmers have either finished or are in the process of confirming their production plans for the upcoming season. Much of this production will be committed to historical customers. A wise shopper that wants to get in on this bounty knows that they need to contact producers early to get their orders in.

Interested individuals looking for information on Yukon products and services can search for producers at one of the following sources:

Yukon Farm Products and Services Website  
[farmproducts.yukonfood.com/](http://farmproducts.yukonfood.com/)

Yukon Agriculture Association Website  
[www.yukonag.ca/](http://www.yukonag.ca/)

Potluck Food Co-op  
[www.potluckcoop.com](http://www.potluckcoop.com)

Yukon Agriculture Branch  
 867-667-5838



**ANNOUNCEMENTS**

**EFFECTS OF CHANGING PERMAFROST CONDITIONS ON AGRICULTURE IN YUKON**

This four year, Aboriginal Affairs and Northern Development Canada funded project focuses on agriculture adaptability to changing permafrost conditions by identifying challenges and barriers to agriculture capacity. Existing best management practices will be catalogued to optimize agriculture production in such areas.

This project will also examine the vulnerability of the national agriculture capability classification systems to changing permafrost conditions. Key permafrost criteria and timelines will be identified when possible. Applying these criteria to the national agriculture capability ratings should increase the accuracy of the classification system for affected Yukon permafrost areas.

During each field season a distinct agriculture region will be evaluated:

- Year 1: Whitehorse/Ibex/Takhini Valley area
- Year 2: Haines Junction
- Year 3: Dawson/Sunnydale
- Year 4: Carmacks, Pelly and Mayo

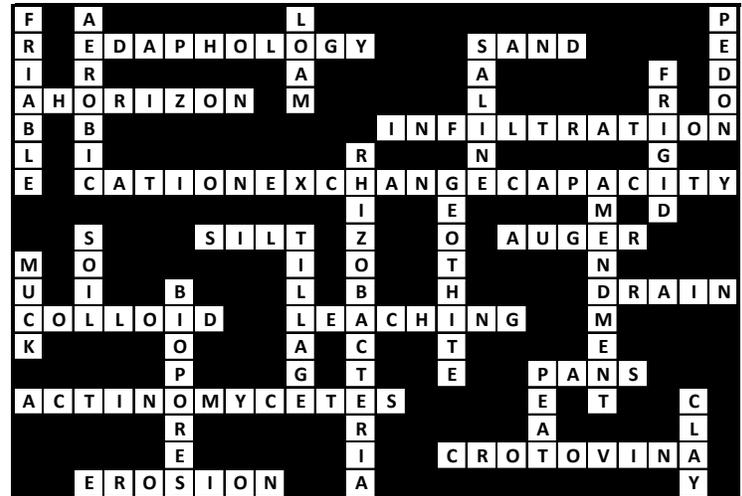
Project commenced in August 2012 and Year 1 field research is complete. Project was presented briefly at AIAC meeting in December. Feedback is welcome from farmers who have dealt with permafrost and/or changing permafrost conditions. Contact Kam Davies at 867-456-6100 (work), 867-332-2285 (cell), or [kam.davies@gov.yk.ca](mailto:kam.davies@gov.yk.ca).

**YUKON WATER LICENSE APPLICATION PROCESS NOW AVAILABLE ONLINE**

The Yukon Water Board has launched a new online registry, Waterline. Individuals can now view all information and receive email notifications as projects move through the water licensing process.

Website: <http://www.yukonwaterboard.ca/>

**CROSSWORD ANSWER KEY**



**INFARMATION is:**

A Government of Yukon newsletter published by the Agriculture Branch of the Department of Energy, Mines and Resources. If you would like to add or remove your name from the newsletter mailing list, comment on an article or contribute a story, please feel free to contact us.

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