

■ Dr. Pierre Hucl, 2019 CSTA Plant Breeding & Genetics Award Winner

The Canadian Plant Breeding and Genetics Award is co-sponsored by the Canadian Seed Trade Association and Germination magazine and is presented to a public or private sector researcher who has made a significant contribution to the advancement of Canadian plant agriculture through research in plant breeding and genetics. Individuals are nominated by their peers and are selected by the CSTA Board of Directors.

The 2019 award will go to Dr. Pierre Hucl, the current senior spring wheat and canaryseed breeder at the Crop Development Centre. Dr. Hucl was nominated for the award by a group of peers. He is an internationally recognized plant breeder having released over 50 crop varieties of wheat, canaryseed and pulse crops.

Dr. Hucl will officially receive his award at the CSTA/CSGA Annual Meetings in Whistler, BC this coming July.

Congratulations Dr. Hucl!!



■ Sad day in Agriculture Building History

The North 40 Shop which was the convenient stop to purchase books, cards, university clothing, gifts, and student supplies officially closed their doors on April 25, 2019. The shop was located in the Atrium of the Agriculture Building, the area designed to be the heartbeat of the building. There has been no announcements as to what will take up occupancy of the empty space.



Staff Appointments



Dilip Biswas joined the forage breeding program as a Research Assistant on April 1, 2019.



Sandesh Neupane began working with the pulse molecular breeding laboratory as a research assistant on March 11, 2019.

Ramandah Bamrah began working with the Entomology program as a research technician on May 1, 2019.



Federico Anez Osuna joined the forage breeding program as a Post-Doctoral Fellow on April 15, 2019.



Jordan Weins joined the Cereal and Flax Pathology program as a research assistant on February 1, 2019.



Sarah Purdy joined the Lipid Quality and Utilization laboratory as a Post-Doctoral Fellow on April 1, 2019.

Clayton Robertson began working with the pulse breeding program as a research technician on February 4, 2019.



Adam Grieve began working as a research technician with the flax breeding program on April 15, 2019.



Deena Granrude began working with the pulse breeding program as a research technician on February 4, 2019.



Gurcharn Brar joined the wheat pathology group as a Research Officer on April 1, 2019.

Yinyin Zou joined the Spring wheat and canaryseed breeding program on February 21, 2019.



Rashim Bibi joined the pulse breeding program as a research technician on February 4, 2019.



Cooper Budnick joined the spring wheat and canaryseed breeding program as a research technician on March 18, 2019.



Guillermo Gerard joined the molecular quality laboratory as a Post-Doctoral Fellow on January 2, 2019.



Sarita Jaiswal began working as a research assistant with the molecular quality program on April 15, 2019.



Said Darras joined the weed control program as a research associate on January 4, 2019.

Kiaunna Lee joined the cereal and flax pathology group as a co-op student on May 1, 2019.



Mohammad Rezaei joined the pulse molecular breeding program as a Post-doctoral fellow on January 24, 2019.



Emebet (Amy) Ayano began working as a research technician with the lentil protein project on May 28, 2019.



Robin Perret-Smith began working as a research technician with the pulse breeding program on May 13, 2019.

Phuan Ha began working with the crop phenotyping group as a research assistant on May 21.



Dilanganie Dissanayaka began working with the pulse breeding program as a research technician on May 6, 2019.



Adam Jewiss-Gaines began working as a Post Doctoral Fellow with the Entomology program on May 13, 2019



Daniel Wiens began working as a research technician with the Lipid Quality & Utilization lab on April 15, 2019.

Racquelle Peters began working with the Agronomy and Weed ecology program as a research technician on May 1, 2019.



Jeremy Marshall began working as a research technician with the pulse breeding program on May 6, 2019.

Save the Date

Ag in Motion.....July 16-18, 2019

PLSC Holiday

Party.....Friday, December 13, 2019

📌 New Graduate Students



Ariana Forand is from Ontario. She attended Queen's University in Kingston where she completed a BSc in Biology (Honours) in 2018. Ariana joins the Environmental stress physiology program under the supervision of Karen Tanino. Her research will focus on plant abiotic stress and the role of the plant cell wall in withstanding stress.



Olivia Otchere is from Ghana. She attended the University of Ghana where she completed a BSc in Agriculture in 2013. Olivia joins the vegetable agronomy program as a Masters student under the supervision of Kate Congreves. Her research will focus on soil health and its effect on vegetable production.



Matthew Wengler is from Ontario. He attended the University of Waterloo where he completed a BSc in Biology (Honours) specializing in Plant Biology. Matthew joins the Pulse Pathology program as an MSc student under the supervision of Sabine Banniza. His research will focus on anthracnose in lentils.



Athena Wu attended the University of Saskatchewan where she completed a BSA in Environmental Science in Dec. 2018. Athena began working towards an MSc under the supervision of Kate Congreves in Jan. 2019. Her research focuses on understanding soil health in Saskatchewan agro-ecosystems.



Ningxing Zhou is from China. She attended the University of Saskatchewan where she completed a BSA in Crop Science in 2019. Ning will join the plant sciences department in the entomology program where she will pursue a masters degree under the supervision of Sean Prager.



Amanda Fedorchuk is from Norquay SK. She attended the University of Saskatchewan where she completed a BSA in Agronomy in 2018. Amanda joins the department as a Masters student with the Weed Control program studying under the supervision of Chris Willenborg. Her research will focus on strategies to reduce herbicide use in faba bean.



Sarah Lynch is from Ontario. She attended the University of Guelph and completed a BSc Honours in Agriculture in April 2018. Sarah is pursuing an MSc. under the co-supervision of Rosalind Bueckert and Sally Vail. Her research will focus on using imaging tools to focus on phenotyping canola.



Denys Solskyi is from the Ukraine. He attended the national University of Life and Environmental Science of Ukraine where he completed a BSc in Agronomy in 2017. Denys is pursuing an MSc. under the co-supervision of Rosalind Bueckert and Sally Vail. His research will focus on using imaging tools to focus on nitrogen use efficiency in canola.



Rasanwada Wijesundara is from Sri Lanka. She attended the University of Peradeniya, where she completed a BSc. special degree in Botany in 2015. Rasanwada has begun an M.Sc under the supervision of Yuguang Bai. Her research will focus on the genetic changes against seed storage.



Junsheng Zhou is from China. He completed two years of his undergraduate degree in China and the final two years at the University of Manitoba with an emphasis in ecology. He then attended the U of S where he completed an MSc. Junsheng will continue his education pursuing a PhD under the supervision of Tom Warkentin.



Brianna Zoerb is from Delisle, SK. She attended the University of Saskatchewan where she completed a BSA in Environmental Science with great distinction in 2016. Brianna will begin an MSc under the supervision of Steve Shirliffe. Her research will focus on crop phenotyping.

2019 Summer Students

Scott Barron	Plant Ecology
Alexa Bast	Agronomy & Weed Ecology
Chanel Bell	Molecular Pulse Breeding
Naomi Budd	Spring Wheat breeding
Oliver Butler	Cereal & Flax Pathology
Alicia Caplan	Rangeland Ecology
Brendon Carbert	Spring Wheat breeding
Marcus Comfort	Plant Ecology
Brittney Douville	Fruit Breeding
Jillian Ehman	Forage Breeding
Carson Eskra	Agronomy & Weed Ecology
Daphnee Ferland	Vegetable Agronomy
Sam Fulton	Crop Phenotyping
Jason Fyfe	Spring Wheat Breeding
Presley Gould	Weed Ecology
Tereva Groff	Rangeland Ecology
Atley Hamlin	Agronomy & Weed Ecology
Iva Henry	Fruit Breeding
Nicholas Keenan	Pulse Pathology
Mackenzie Kerr	Agronomy & Weed Ecology
Nayoung Kim	Spring Wheat Breeding
Ryder Kindt	Vegetable Agronomy
Ethan Kish	Durum Wheat Breeding
Kody Kushniruk	Barley & Oat Breeding
Sophia Lee	Cereal & Flax Pathology
Cathurine Liu	Rangeland Ecology
Seth Lundell	Rangeland Ecology
Haley Magnus	Barley & Oat Breeding
Danika Marquette	Forage Breeding
Jocelyn Marquette	Forage Breeding
Stuart Matthews	Rangeland Ecology
Eryn McHardy	Weed Ecology
Justin Park	Crop Physiology
Seonjae Park	Crop Phenotyping
Lee Paulow	Rangeland Ecology
Jace Peters	Kernen Farm
Brooke Robertson	Weed Ecology
Haley Scheck	Agronomy & Weed Ecology
Hanna Scheck	Weed Ecology
Shae-Lynn Smith	Spring Wheat Breeding
Roy Taylor	Fruit Breeding
Harjot Tur	Barley & Oat Breeding
Kirsten Van Marion	Pulse Molecular Biology
Jacqueline Verhallen	Entomology
Josh Wiebe	Horticulture Facility
Noah Zerr	Crop Science Field Facility

Dr. Gordon Gray



It is with great sadness that we announce the passing of our friend and respected colleague Dr. Gordon Robert Gray, aged 51 years of Saskatoon on Sunday, February 17, 2019 surrounded by family and friends after complications from surgery and psoriatic arthritis.

Gord was born on December 9, 1967 in Brantford, Ontario to Dorothy (Cline) and William Gray. He became a faculty member at the University of Saskatchewan in 2000 and was affiliated with both the departments of Biochemistry in the College of Medicine and Plant Sciences in the College of Agriculture where his research focused on the effects of abiotic stress on photosynthetic mechanisms and general plant metabolism.

Gord is survived by his loving wife Cynthia, his mother Dorothy Marguerite (Cline) Gray, his sister-in-law Pamela Swan and Mother-in-law Beryl (Robinson) Swan, as well as a large family of cousins. He was preceded in death by his father William Coats Gray.

Donations in memory of Gordon may be made to the Dr. Gordon Gray Memorial Award. Cheques can be made payable to the University of Saskatchewan and mailed to University Relations, G15 Thorvaldson Building, 110 Science Place, Saskatoon SK, S7N 5C9. Donations may also be made online at donate.usask.ca, indicating Dr. Gordon Gray award in the comments section.

Long Term Service Recognition

The Plant Sciences Department and the Crop Development Centre would like to recognize the following staff members on their years of service milestones:
For the months of January - May, 2019

5 years of Service:

Kishore Gali
Research Officer
Pea & Soybean Breeding Program
February 10, 2014



5 years of Service:

Mallory Dyck
Research Technician
Cereal & Flax Pathology
May 1, 2014



5 years of Service:

Rensong Liu
Research Technician
Environmental Stress Program
May 1, 2014



5 years of Service:

Lisa Taylor
Research Technician
Fruit Breeding Program
May 1, 2014



5 years of Service:

Dayna Raymond
Research Technician
Pulse Breeding Program
May 5, 2014



10 years of Service:

Dashnyam Byambatseren
Research Technician
Forage Breeding Program
April 1, 2009



10 years of Service:

William Funes
Research Technician
Pulse Breeding Program
March 1, 2009



10 years of Service:

Lacey Kucheran
Research Assistant
Bioinformatics
May 4, 2009



20 years of Service:

Gloria Gingera
Communications Assistant
General Department
January 4, 1999



20 years of Service:

Craig Ells
Research Technician
Breeder Seed Facility
April 5, 1999



25 years of Service:

Kirk Blomquist
Field Superintendent
Plant Science Facilities
February 1, 1994



25 years of Service:

Paul Bulka
Research Technician
Kernen Farm Field Facility
February 14, 1994



25 years of Service:

Silvia Lessa
Research Technician
Barley & Oat Breeding Program
February 14, 1994



Staff Appreciation - Thursday March 7, 2019...10 years old!

The annual staff appreciation luncheon reached 10 years of celebrating our staff members! The first staff appreciation lunch was held on March 18, 2009 at the Forest Grove Community Church on Webster street in Saskatoon. The event was started by Dorothy Murrell and Bruce Coulman as a way of showing the appreciation from the department for all of the ongoing contributions made by the many staff members of both the Plant Sciences Department and the Crop Development Centre. Each year at least 200 staff members are treated to an extravagant lunch and are offered a small gift as a token of appreciation.



📌 Congratulations...



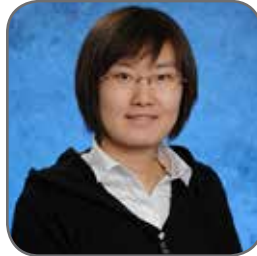
Vladimir Pajic successfully defended his PhD. thesis entitled "Genetics of Group 14 Herbicide Tolerance in Lentil" on Monday April 29, 2019.



Gurcharn Brar successfully defended his PhD. thesis entitled "Characterization of Resistance to Fusarium Head Blight in Bread and Durum Wheat" on Wednesday, March 6, 2019.



Adebimpe Oyene successfully defended her M.Sc. thesis entitled "Production of α -Glycerolphosphorylcholine by Fermentation of Canadian Wheat cultivars" on Thursday May 2, 2019.



Chen Huang successfully defended her PhD. thesis entitled "Optimization and Utilization of Immature Spike Culture System to Identify and Characterize Fusarium Head Blight Resistant Wheat Genotypes" on Thursday January 24, 2019.



Samuel Tandoh successfully defended his M.Sc. thesis entitled "Characterization of Crested Wheatgrass germplasms for Plant Maturity and Associated Physiological and morphological Traits" on Wednesday January 30, 2019.



Keiko Nabetani placed first for her poster presentation "Detection and evaluation of residual effects by defeated stripe rust resistance genes in common wheat" at the 2019 Soils and Crops Conference held in Saskatoon March 5-6, 2019.



Sandesh Neupane successfully defended his M.Sc. thesis entitled "Flowering Time Response of diverse Lentil (*Lens culinaris* Medik.) Germplasm Grown in Multiple Environments" on Wednesday January 30, 2019.



Soudeh Farzadfar placed second for her poster presentation "Toward Sustainable Nitrogen Management in Vegetable Production: Balancing Yield and Nitrogen Use Efficiency" at the 2019 Soils and Crops Conference held in Saskatoon March 5-6, 2019.



Akshaya Vasudevan successfully defended her M.Sc. thesis entitled "Mapping of Genomic Regions Underlying the Early Flowering Trait in 'RE2', a Mutant Derived from Flax (*Linum usitatissimum* L.) Cultivar 'Royal'" on Friday January 4, 2019.

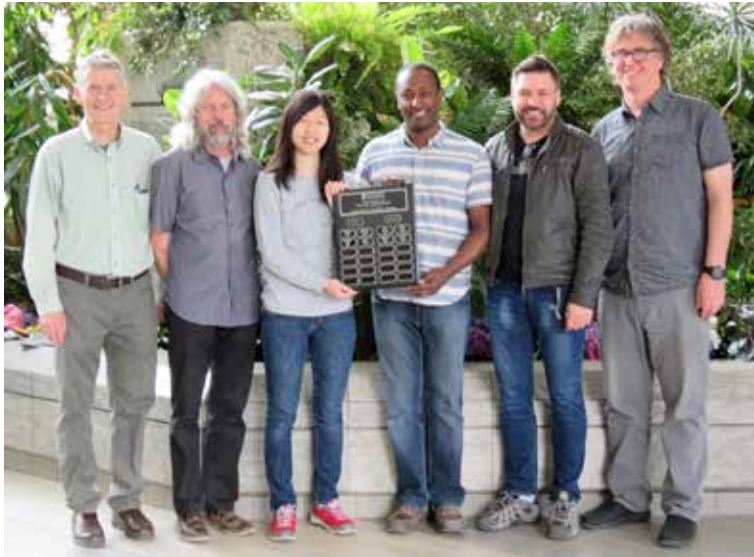


Ian Willick was awarded the 2018 - 2019 Harry Troop Memorial Prize for his Ph.D. Thesis entitled "The mechanism of freezing resistance in cold-acclimated winter wheat and rye crowns."



Ethan Bertholet successfully defended his M.Sc. thesis entitled "Evaluation of Efficacy of New and Existing Dessiccants in Lentil" on Wednesday January 9, 2019.

2018 Outstanding Graduate Students Awards



l. to r.: Tom Warkentin, (grad student committee chair), Randy Kutcher, (M.Sc supervisor), Keiko Nabetani, (M.Sc winner), Teketel Haile, (Ph.D. winner), Curtis Pozniak, (PhD. supervisor), Steve Shirliffe, (acting PLSC Dept. Head).

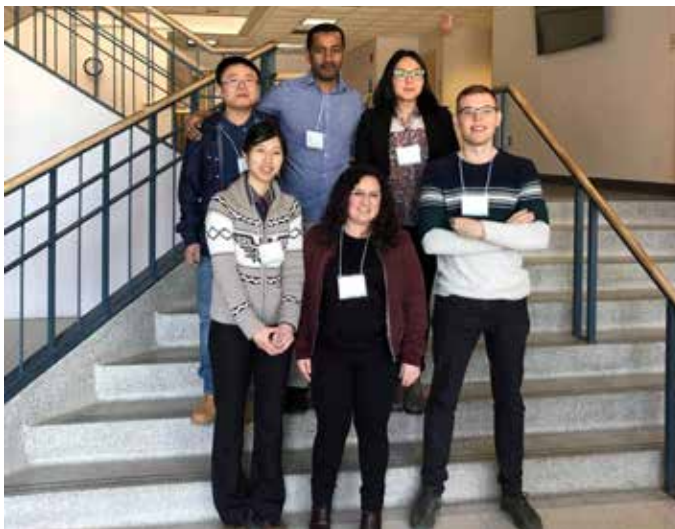
The Plant Sciences Outstanding Graduate Student award was first awarded in 1992 to one Master's and one PhD student who have shown excellent research, leadership, service and academic achievement. Nominations are submitted by a faculty member or a full-time graduate student advisor and are reviewed by the graduate student committee.

Congratulations to the Masters and Ph.D award winners for the year of 2018. Keiko Nabetani is currently an M.Sc student in the cereal and flax pathology group studying under the supervision of Randy Kutcher.

Teketel Haile defended his PhD in 2018 under the supervision of Curtis Pozniak in the Durum Molecular Wheat Laboratory.

2019 Plant Sciences Graduate Student Symposium-North Dakota State University

A small group of graduate students from the plant sciences department travelled to North Dakota State University in March to attend the annual PSGSS. The event has been taking place for over 30 years. Students from the University of Manitoba, the University of Saskatchewan and North Dakota State University gather each year to present their research in a competition format.



*back row (l. to r.) Hu Wang, Antenneh Feyissa, Amara Gungaabayar
front row (l. to r.) Keiko, Maria Alejandra Oviedo-Ludena, Dan Malamura*



Amara Gungaabayar presenting her research.

Stevenson Award Winners (written by Sara Williams)

Bob Bors and Rick Sawatzky, fruit breeders with the Department of Plant Sciences, University of Saskatchewan, are the joint recipients of the prestigious Stevenson Award for their development of sour cherries and haskaps.

Inaugurated by the Manitoba Horticultural Association in 1932, it honours individuals who have "made a conspicuous achievement in the field of practical horticulture." Named in memory of A. P. Stevenson, a pioneer Manitoba horticulturist who arrived from Scotland in 1874, it has been given only 21 times in 83 years.

As gardeners, we seldom give much thought to their origins as we eat haskaps fresh off the bush or take a cherry pie out of the oven. But it took more than 50 years of breeding and selection work at the University of Saskatchewan before you planted your prairie-hardy cherries and over 20 intensive years went into the development of those haskaps.

Sour Cherries

The first sour cherries planted in the University experimental plots were from seeds from the Central Siberian Botanic Garden in Novosibirsk. These were just beginning to fruit when Rick began work as a technician in 1971. They had low productivity and lacked winter hardiness. Asked to discard them, Rick took two home which he tried (unsuccessfully) to cross with sweet cherries. His goal: to develop a hardy large shrub with large, high quality fruit.



Rick's next crosses involved a collection of sour cherries, mainly from Europe, received from Les Kerr (who had worked on them for at least 20 years). All these were controlled crosses made in the greenhouse with help from Rick's kids on weekends. "It was a great botany lesson for them."

Rick crossed the best of these, 'Kerr's Easy Pick', with 'North Star', a sour cherry tree introduced from Minnesota. The result was 'SK Carmine Jewel', the first sour cherry introduced by the University of Saskatchewan in 1999.



l. to r.: Rick Sawatzky and Dr. Bob Bors

Bob arrived at the University of Saskatchewan in 1999 when a new generation of Rick's seedlings were coming into production. He tasted them, began taking data and thought, "These cherries are exciting!" Bob jokingly says, "Rick was their Dad and I became their Godfather."

Bob tested them further, selected the best and developed a protocol for their tissue culture propagation. He gathered additional cherries from local growers and from Ontario and made more crosses. When making selections he looked at flavour, size, pitting ease and the possibility of mechanical harvesting.

Bob introduced the Romance series of cherries in 2003: 'Crimson Passion', 'Cupid', 'Juliet', 'Romeo' and 'Valentine'. Of these, Rick's favorite is still 'Carmine Jewel' while Bob's are 'Romeo' and 'Juliette'.

Rick's advice on the care of sour cherries: "Grow them as a shrub with multiple stems rather than in tree form." Bob concurs and adds: "Keep the soil around cherries weed-free."

Haskaps

Haskaps have gone through many incarnations in terms of their names. They've been called blue honeysuckle, sweet-berry honeysuckle, and honeyberries. The earliest Canadian selections were made by George Bugnet, a French novelist and early plant breeder who homesteaded west of Legal, Alberta in 1905 and who is better known for his roses. Bugnet's honeysuckles were a beginning, but their taste, size and texture left much to be desired.

Breeding at the University of Saskatchewan began soon

after Rick Sawatzky came across what were then called honeyberries (*Lonicera caerulea edulis*) in 1997 in an article by Jim Gilbert in a Minnesota fruit magazine, *Berryland News* in 1997. He ordered 2 each of 4 honeyberry cultivars from a nursery in Oregon.

Rick was in the preliminary testing mode when Bob Bors joined the Department and tasted them in the summer of 2000 when he and Rick were giving a field tour to growers. It was June and they were already ripe. Both Bob and the growers became very excited. (Bob has yet to calm down).

The following year crosses were made among the four varieties. By 2003, thirty-three named Russian haskaps had been obtained from multiple sources. In 2004, Bob heard a talk on haskaps by Dr. Maxine Thompson at a conference. He visited her breeding program and she gave him many seeds and cuttings of Japanese haskaps to use in his breeding. That was a double whammy. Has-kaps had him. Over the next decade, Bob made trips to Japan, Poland, and across Canada gathering an enormous collection of



wild and cultivated haskaps. As well, he continued to obtain seed from various sources, especially Russia.

Maxine Thompson had referred to them as haskaps: the phonetic spelling of the word used by the Ainu people who

settled Hokkaido, Japan in the 13th century and the world's oldest name for this berry. Bob followed her nomenclature and haskaps they've become.

"We had stock from Dr. Thompson from Oregon State University and from Japan as well as seeds from Russia. Once they were in the plots I selected what was worth crossing. There were many from which to choose and they ripened at different times."

Among the early and mid-season haskaps released in 2007 were 'Borealis', 'Tundra' and the Indigo series ('Indigo Gem', 'Indigo Treat' and 'Indigo Yum'). 'Aurora' and 'Honey Bee' followed in 2011. Later ripening haskap releases were 'Boreal Beauty' and 'Boreal Blizzard' in 2014 and 'Boreal Beast' in 2016. Of these, Bob's favourite are 'Aurora' and the Boreal series.

Marketing

The next step was introducing the new dwarf sour cherries (and later the haskaps) to commercial fruit growers and the nursery trades. Thousands of open-pollinated plants were

sold through Western Producer ads and dozens of clonally propagated selections were distributed free to carefully chosen co-operators.

Bob became the consummate marketer and publicist of both cherries and haskaps, writing a growers manual (with Linda Matthews), giving many talks and courses, leading plot tours, posting articles on the Fruit Program's web site (www.fruit.usask.ca) which gets 2 million hits per year, and taking cherries and haskaps with him for folks to taste wherever he went. Once people became aware of their existence, both fruits became very popular.

Haskap research has been funded through five Saskatchewan Agriculture grants spanning 13 years. Over the last five years (2013-2018), 75% of the program funding has come from plant patent royalties derived from their introductions. Plant sales directly to the public, held annually in early June since 2005, workshop registration fees and cherry and haskap cookbook sales have also funded their research.

Parting Thoughts

Bob wishes other breeding programs would replicate the University of Saskatchewan's style. "Many of them still operate in a traditional manner – they exclude the general public. We're the opposite. We welcome the so-called 'backyard gardener', hand out materials, and have an annual plant sale. Grassroots connections with the general public are crucial and should not be underestimated".

Rick feels his greatest accomplishment was simply keeping the fruit program going at times when few others in the Department were interested. He loved his work on fruit during the 47 years he was with the University and that love continues into his retirement. He believes good apples and great pears are only one generation away.

Bob's greatest accomplishment has been "the expansion of the haskap program. We took something that did not exist and brought it forward to the point where the University of Saskatchewan has the world's best haskap breeding program. Our haskaps taste better, ripen later and stay on the bush longer before falling off. As well, we were the first to use mechanical harvesters. We have given birth to a whole new industry."

As well as the cherry and haskap breeding, we have continued to breed and maintain a diverse collection of over a dozen far north fruit crops in what we call the "Prairie Fruit Gene bank".

*Sara Williams is the author of many books including *Gardening Naturally with Hugh Skinner*, *Creating the Prairie Xeriscape*, and with Bob Bors, *Growing Fruit in Northern Gardens*. She continues to give workshops on a wide range of gardening topics throughout the prairies.*

📌 new arrivals...



Congratulations to Dave and Danielle Fernquist and older brother Henrik on the arrival of the second son and little brother Ford David Fernquist. Ford was born January 3rd at 9:06 am weighing 6.7lbs and measured 19.75 inches long.



Congratulations to Shaun Campbell and his wife Kat on the birth of their daughter. Lenni Anne arrived January 2nd weighing 9.3lbs and measuring 21 3/4 inches. Lenni is little sister to Quinn and step sister to Hanna and Hailey.



Congratulations to Ellen and Jason Misfeldt on the safe arrival of their first child. Clara Madalyn Misfeldt was born January 30 at 8 am, and weighed 6.6 pounds.

📌 other arrivals: the crop phenotyping mobile lab (phenobus)



If you happen to see this 25 ft. "bus" in the field take note that it is the latest in mobile laboratory technology for the Plant Phenotyping and Imaging Research Centre (P2IRC) in the plant sciences department. The 3 ton "pheno-bus" is an on-the-go image processing and charging work station.

One of its most important features is a generator which allows the six indoor and outdoor electrical outlets to provide full power to the team while they are in the field. In past seasons, the group carried eight sets of batteries that would limit a days work. They can now continuously charge batteries while flying.



Included inside the bus are three computer work stations allowing for instant checking of data and downloading of images in the field. This instantly shows if the correct data has been collected or if they require to redo a flight.

Some of the nice extras include a large storage capacity for hauling the UAV storage cases, a 10ft awning which can provide some needed shaded areas on very hot days and a small fridge to keep food and drinks cool.

The P2IRC is a digital agriculture research centre funded by the Canada First Research Excellence Fund, managed by the Global Institute for Food Security, and located at the University of Saskatchewan.