

THE PULSE pod

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Sprouting lucrative gaps in nutrient-rich pulses value chain

By SRIDHAR IRIVENTI



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Pulse Canada Update

March 2018

FROM THE PRESIDENT'S DESK



Dear Industry Colleagues,

We are well into conference season in the global pulses sector. The Pulses Conclave and Gulfood were held in Delhi and Dubai respectively in February; and now, Global Pulse Conference, Pulses 2018 Colombo, has been scheduled during May 7-10 in Colombo, Sri Lanka. Of course these regions, including India, Sri Lanka and Dubai, are some of the most important regions for our sector. It is most fitting that activities likely to define our marketing year are centered in these locations.

I am sure we will find much of the discussion at this upcoming event and other to follow throughout the marketing year will center on the themes discussed at The Pulse Conclave. These themes relate to the fact that after 10 years of pulse production trending upward, some pulse markets are now temporarily in oversupply situation. Of particular note, the bumper crop in India has led to low returns and complaints from smallholder farmers in India. This, in turn, has resulted in government interventions that have increased market volatility in the pulse sector. A path forward was discussed in my presentation at The Pulse Conclave namely 'Modernization of the Pulse Sector and Food Industry in India' where I talked about how the pulse sector in the world's largest pulse market is changing and what impact that may have for India, as well as the global pulse sector overall.

There were several other takeaways as well from The Pulse Conclave. First, we are seeing increasing conflict between governments' desire for greater trade access on the one hand and need to protect small farm holders and domestic agriculture via market interventions, on the other.

Second, government interventions in the pulse sector to help smallholders in one country can and often do hurt small farm holders elsewhere.

The reason for this is simple. It is no longer only the traditional players like India, Canada, Australia and Turkey that are driving supply/demand cycles. Increasingly we are seeing non-traditional suppliers such as those from Africa (Mozambique, Ethiopia, Tanzania) play expanding role in the global pulse sector.

In fact, to demonstrate this increasing influence of non-traditional suppliers, the Government of Burkina Faso, one of the most important producers of pulses in Africa, sponsored a Global Pulse Day, with financial support of Global Pulse Confederation, attended by more than 50,000 people. I was pleased to present awards to President Roch Kaboré and First Lady Sika Bella Kaboré in recognition of their support of World Pulse Day declaration at United Nations.

Third, experience tells us government interventions typically negatively affect consumer prices and can have significant impacts – particularly as relates to planting cycles and small farm holders' profitability.

Of course, the matters of government intervention appear to be the most pressing for our sector, as the introduction of tariff and non-tariff trade barriers can have the most immediate impact on trade flows, impact prices and impact market's ability to determine supply-demand dynamics with greater predictability and transparency.

These topics will of course be top of mind in May in Colombo. We at GPC look forward to seeing you in May in Colombo. Best regards.

Huseyin Arslan
President, GPC

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INDIAN PULSE CONCLAVE COMMUNIQUE

PULSE AUSTRALIA



In February, a contingent of Pulse Australia members converged on Delhi to participate in the Indian Pulse Conclave. The Conclave is a biennial event aimed at bringing pulse traders around the world face to face with their Indian counterparts for the purpose of furthering trade and better understanding the Indian pulse market.

While there were a number of outcomes from the Conclave, summarised below, one of the more significant was the agreement reached between the industry peak bodies of Pulse Australia and the Indian Pulse and Grain Association (IPGA).

Representatives from Pulse Australia met with IPGA at a side meeting chaired by Austrade to establish ways both organisations can work together for better outcomes for their members. Representatives from Grain Producers Australia (GPA) and the Australian Grains Industry Market Access Forum (GIMAF) were also in attendance.

Both Pulse Australia and IPGA signed an agreement for greater exchange of information about respective pulse crops and longer term trends in quality needs; on ensuring consistent messages to respective governments in relation to the implications of market interventions and other trade policies; and provided joint support for GPC mediations as the preferred form of dispute resolution.

The underlying tone of the Conclave was not surprisingly tempered by the trade disruptions resulting from recently imposed tariffs on most imported pulses, and the uncertainty this has created. It was reported that trade flows are diverting chickpeas and yellow peas to markets such as China, in addition to the established alternate markets of the subcontinent.

As India moves into election mode, (elections May 2019) and rural constituents are a major focus for the ruling BJP Party, there is no great incentive for the government to ease tariffs at this time. The impact on the Australian trading and production sectors of

these tariffs is very evident – less evident, however, is the impact of the tariffs on the Indian domestic trade, where importing pulses has become more financially stressful for importers, highlighting the need for Australian exporters to complete due diligence on counterparties and manage payment terms.

Major talking points on Indian Pulses total supplies and demand:

- India produced a record 23 mln tonnes of pulses in the 2016–17 (Jul–Jun) crop year and output could be close to that figure in the ongoing crop year as well on a higher area, but most likely a lower yield.
- The Indian Government retains a goal of becoming self-sufficient in Pulses. Time will tell if this aspirational goal is achieved; however for the foreseeable future, it is clear that India will continue to rely on imports of pulses in order to supplement any domestic shortfalls.
- The heavy reliance on unpredictable Monsoons indicates that domestic shortfalls will continue to be a regular occurrence in India until such time that farming practices and plant genetics improve significantly.
- A rise in output over the last couple of years, record imports, and a large government buffer stock are keeping markets well-supplied and local prices depressed. We must assume that as a result, India will sharply reduce imports of pulses this year.
- India's pulses imports are likely to nearly halve to 2.5–3.0 mln tonnes in the financial year starting April due to ample stocks in the country and uncertainty over the government's policy.
- In Apr–Dec 2017 around 5 mln tonnes of pulses had been imported. By the end of March, the figure could be around 5.5–5.7 mln tonnes.
- Concerns that the government may take more steps to limit imports of pulses are also expected to keep imports lower. Some participants were suggesting a lift to 100% tariff on chickpeas was likely. This would be the maximum (bound) rate according to WTO guidelines.

Quantitative Restrictions on Imports - Long term impacts and ramifications

By Dr. BHARAT KULKARNI



India's Diplomatic Engagement with Africa as a Supplier of Pulses during troubled times:

The government of India was faced with the challenge of rising prices of pulses in 2014 and 2015 and had to respond to the situation. They undertook a diplomatic route to encourage African governments to promote growing pulses among their farmers. The effort of the Indian government to push African nations to grow more pulses occupied the center-stage of India's engagement with Africa. During the India Africa Forum Summit in 2015, in Delhi, at the meeting of the trade ministers, the Commerce Minister of India emphatically urged the African nations to grow more pulses. Followed by it was the state visit of the Indian Prime Minister to Mozambique, Tanzania and Kenya in 2016, where the Prime Minister urged the farmers in these countries to grow more pulses and assured them a market in India.

To formalize this commitment, an agreement was signed with Mozambique to procure pulses. Similar opportunity was offered to Tanzania, though no agreement was signed. Further, the Government of India also worked with the developmental partners in Africa like the ITC-SITA project to promote more pulses to be produced. All in all, Indian Government did not leave any stone unturned to make pulses a preferred crop to produce in Africa.

African governments also responded by engaging with their farmers and the developmental agencies. Even the private sector players stepped up the investments in these value chains. For example, Export Trading Group has invested about USD 13 million in setting up pulses processing plants in Mozambique. The farmers were excited to see the prices offered by India and moved to pulses, giving up crops like maize. The expectation was to make better profits.

However, as the product hit the harvest time, India stunned everyone by imposing quantitative restrictions on pulses like Pigeon Peas, Black Mung and Green Moong. The pulses market in East Africa hit rock bottom in terms of prices, with hundreds of farmers and their government clueless on how to find the market for pulses.

Impact of the Action of Government of India –The decision of the Government of India to install quantitative restrictions came as a shock to many of these governments and has put them into a very difficult situation. As the farmers are ready with the produce, the markets in India have suddenly evaporated. This has a dual impact on the industry. First, as the governments struggle to get their farmers' produce to the markets and sustain them financially, the governments find them in a political crisis. Further, the disappearance of the largest buyer and consumer in the world, the prices globally have plummeted making the job of the agencies more difficult.



This is snowballing into a major political challenge for the governments, like for those in Tanzania, Malawi and Mozambique. The Tanzanian minister has already voiced his disappointment at the grain summit in Dar es Salaam in October 2017. The Malawian farmers are pressurizing their government to take Indian government to court. This has, and will continue to have, serious diplomatic ramifications in the course of India's engagement with African countries. How this will affect the production pattern in the coming years is yet to be seen.

What will be the Future- After burning their hands in the current crop, the farmers in Africa are planning to shun pulses and move to other crops. The supply from Africa will be significantly reduced in next harvest. If the Indian restrictions continue beyond March in 2018, the African farmers will not grow pulses. This will make the global supply shrink.

Further, the prices in the near future are expected to be soft due to higher production and huge carryover stock. As a result, the quantitative restrictions are set to be extended beyond March. However, the disruption caused by this will show impact in the year 2019. The domestic production will normalize and the import requirement will grow back to 4-5 million tons. That time the supply from Africa will be significantly short and will make the prices more volatile. The global prices may shoot up significantly and with 2019 being the election year in India, this may have a damaging impact on the political set up as well.

Besides these direct impacts, the ramifications are more subtle. The political crisis that the African governments have been pushed into has already started to damage the diplomatic relations and the support of 54 countries from Africa that India enjoyed over the years may take a beating. African governments are known for taking a united stand and this may have serious implications on other strategic issues of India's engagement.

INDIA UPDATE: The inevitable seldom happens; it is the unexpected always'

By G. CHANDRASHEKHAR, Global Agribusiness & Commodities Market Specialist



The most unexpected happened in India in 2017. After thirty long years of uninterrupted imports, pulses from overseas origins were denied free entry into the Indian market by a combination of policy interventions namely imposition of Quantitative Restrictions (covering tur/arhar (pigeon pea) and urad (black gram) moong (green gram) and customs duty on yellow pea and lentils.

The provocation for change of liberal policy stance was triggered by a massive rebound in domestic production in 2016-17 estimated at 23 million tons and an equally large harvest slated for 2017-18. Humungous increase in domestic production augmented by unchecked imports pressured domestic prices down. Supplies were unmatched by demand growth. The policymakers were forced to intervene.

The development – especially India's turnaround in production - has shocked the global pulses market, especially producing countries that substantially depended on the burgeoning Indian market whose ravenous appetite was incredible and lulled the exporters into a sense of complacency with hope that the Indian market would be available forever.

The unexpected turn of events has sent market participants scurrying for cover. Pulse growers – in India and abroad - have

lost money, so have pulse traders following the collapse of prices. Contract defaults and renegotiations of prices have become the norm. There is a massive loss of confidence. It is going to take time for the market to find its balance again.

Self-sufficiency – a chimera:

Buoyed by harvest numbers, some Indian government officials have claimed that the country has achieved self-sufficiency in pulses. They seem to have been guided by the sharp fall in domestic prices. At the moment, self-sufficiency is a chimera and farther from the truth. For India to reach self-sufficiency, its domestic harvest much reach close to 30 million tons of raw pulses.

The current harvest of 23-24 million tons would fall short of self-sufficiency level by at least 20 percent. Look at the numbers and work out the marketable surplus. Quantity retained for sowing (about 50 kilograms per hectare for 30 million hectares) and for direct consumption would be about two million tons. Milling losses are typically 15-20 percent. So, milled pulse (dal which is consumed as food) would be 17-18 million tons.

This translates to per capita availability of 13-14 kilograms, far below what nutritionists recommend. In addition, there is a skew in consumption pattern. The nutritionally challenged sections of the population deserve to eat more pulses; and they do not get to consume what the per capita availability number suggests. Importantly, in India, pulses are the most economically-priced source of vegetable protein.

Forced by circumstances – socio-economic and political compulsions - the Indian government has resorted to negative tactics such as imposition of QRs and customs duties. These at best can be quick fixes and not lasting solutions.

On the other, New Delhi must embark on affirmative action which will include a robust procurement system to support farm-gate prices, distribution of dal (milled edible pulse) to vulnerable sections of the population through welfare programs and encouragement to domestic value addition. These initiatives will be grower-friendly and consumer-friendly.

Importantly, the government has no clue about global market conditions and much less about the emerging scenario. No wonder, policy actions are almost always reactive, rather than proactive.

On current reckoning, it is likely to take some months – perhaps until September – for the market to regain a sense of balance. The burdensome inventory in India will have to be worked off. Festival season beginning in June (Ramzaan) followed by several Hindu festivals in August, September and October will boost consumption. By then, the size of the upcoming Indian kharif crop would be clear as also the size of harvest in other major producing countries.

One year from now India will go into election mode. Control of food inflation will be the prime focus of the government.

Market Uncertainty & Search for Options

By MARTIN CHIDWICK



When the biggest producer and biggest consumer/importer of pulses in the world, India effectively shuts up shop, the reverberations around the global trade have been shocking. Yet, perhaps the time to take stock will inspire a fresh wave of perspectives and credible and sustainable business models... if, investors and bankers can have a little patience... read on.

A question of priority and motivation:

As the pulse producers in the Northern hemisphere ponder how much land to devote to the planting of 2018 legumes, I heard, what for me was a beautiful illustration of what it is that growers everywhere facilitate.

"What we are eating, is soil transformed. Soil gives its body to that seed. With the help of that soil, the seed becomes a plant or a tree. Where else could we get such a magnificent return on investment?" asked Satish Kumar, Indian activist and editor. (Satish went on to talk of the apple tree as his guru...of humans having come from earth... or 'humus'... meaning earth and ground; of an apple tree never turning a 'consumer' away, regardless of ethnicity, education, status and wealth. Humbling. An interesting perspective!)

Meanwhile it is perhaps no coincidence that the 2016 International Year of Pulses followed the International Year of Soils... and just may be we missed an opportunity for some critical messaging... although there is no critiquing from me for what was a wildly successful IYP!

Back to Satish. "We grow food to make money, not to feed people. We should use money to grow food". How do we combat the mantra 'the principal focus is the profitability of growers', or 'what is the percentage earned and reflected in our EBIDTA statement this year?'

I recall a board meeting at the then CICILS-IPTIC, when the impassioned response of one noted member to 'there should be

no GMO research in pulses' was - "people need to eat. They need full stomachs. We can do more studies on any negative aspects of GMO in 50 years from now. But pulses accessibility is the priority. We have to explore all avenues and science available". (Words as per memory not exact!)

Of course I would be naive to suggest that making a living, making some money is not a prerequisite for being in our industry; but I am concerned we are trafficking into an era where all that matters is the fiscal cost and reward to self. As if that is the only measurement that matters.

You matter. Your health matters. Your family matters. Your country matters. (Segue... Half Cup Habit 3X a week challenge. Think put my oxygen mask on first before assisting others... Eat pulses and support the cause!).

The Golden Temple in India, the holiest Sikh Gurdwara, feeds over 100,000 people daily, a vegetarian meal, regardless of race, religion and class. I read these words, "From a culture of sharing we have become a culture driven by possession and profit. The century of self"... and here comes an interesting one..." This year the world will produce enough food to feed twice the world's population, yet every day almost one billion people will sleep hungry". (*See below for a contrarian view... which is it?) So what is our priority and motivation in this pulses industry...?

A question of accessibility, need and transparency. A different kind of value.

Recently Michael McCain, CEO of Canada's Maple Leaf Foods was interviewed by Dawn Calleja and published in print for The Globe and Mail. "The food industry is in crisis" Michael says. He wants to build the most sustainable protein company on earth... even if that means making meat out of plants... (which on reflection is what livestock already do effectively themselves, but at apparent great misuse of water, land and atmosphere).

The crisis (and a dichotomy*) "is rooted in the realization that the global population is drawing on a limited resource pool, planet earth, and the dietary trends and growth in population over the next 20 or 30 years will make the food system we have today unsustainable. At the same time, the level of trust in the food industry is not what it should be."

Do we or don't we produce enough food? If at 7.6 billion people we produce twice what is needed today... then how much more poignant when Michael says that part of the problem with food production around the world is not the arable land base - it's getting the arable land base to the same level of productivity that exists in North America, without a carpet of chemicals... ..(how's that for competition to those of us in North America?... look at Kazakhstan, Russia, Ukraine, Lithuania, Moldova, East Africa just to name a few...).

Too much or too little, there are some 800million people who do not access food that should be their inherent right. There are growing hundreds of millions who distrust the ingredient deck on

processed foods. Then there is the whole question of accessing nutritious food at an affordable price. Says Michael, "It's not just having food available to you, but having the correct nutritional balance; it's a fundamental challenge in the plight of food security."

As consumers, do we know what we need? Even the least switched on among us in terms of what's good... understand we need protein in one form or another! As concerned participants in the pulses industry, do we care enough, collectively, to speak up for those with no voice and no access to our nutritious pulses?

I contend that a different kind of value be what motivates our participation. Others first.

Lesson from a Chinese bamboo tree and guidance from the pet food trade?

Plant a bamboo seed. Water it, nurture it and fertilize it, daily. Nothing much happens. Not for 4 years. Then in year five... an incredible development. A small sprig becomes a bigger one the next day, and by the end of 5 weeks, its 26 metres plus, tall!

Take a look at the push for plant based proteins. In Canada alone, an alliance of 120 companies and organizations focused on developing plant based proteins (of which beans and lentils are front and centre) won a spot in the Federal Government's \$950 million super-cluster proposal. Across Canada different market commentators will variously say expect demand for dry peas as a domestic protein source to attain over 700,000 tonnes. I am not sure in my analogy, whether we are in year 3 or 4... but many of us can taste the mounting excitement that explosive growth of a year 5 will bring!! Stick with it...

This morning I read these words "We couldn't find an animal or plant protein with the ideal amino acid profile that was truly natural, sustainable and humane. So we decided to create it?! "An in depth study of the pet food industry (did you read of General Mills near \$8 billion spend on Blue Buffalo Pet products Inc and the motivation behind it?), will reveal how health conscious and how driven their focus is on providing safe nutritious healthy food

for our pets, that check all the boxes of food secure, food safe, environmentally friendly and sustainability demands out there.

The lengths the pet food industry goes to connect with the consumer... with the heart, speaks to the Soul Search of this articles title. When I read publications within the pet trade... I don't see an expression of profit first... I see an attempt at connecting with the consumer and their pet, right where they are at." "We care" is the message. Sadly on our human side of the fence... it seems 'we don't care enough'!! (With apologies to those of you who do!).

A lesson from the Netherlands:

The globe's number two exporter of food as measured by value. Second only to USA which has 270 times its landmass. "Almost two decades ago, the Dutch made a national commitment to sustainable agriculture under the rallying cry 'twice as much food using half as many resources'. Since 2000, van den Borne and many of his fellow farmers have reduced dependence on water for key crops by as much as 90 percent. They've almost completely eliminated the use of chemical pesticides on plants in green houses, and since 2009 Dutch poultry and livestock producers have cut their use of antibiotics by as much as 60 percent. Here comes that dichotomy again to those who say we do and will have enough food and those who say we don't..." The planet must produce more food in the next four decades than all the growers in history have harvested over the past 8000 years". No doubt... power of exponential growth.

Today, India has effectively closed the door to imports of pulses. We can all be cynical or we can all look for the silver lining. Mr Modi sees the power of addressing the heart of his people... not mine or yours so much! His government's protectionism. His prerogative. As for us, 'unprotected', what do we believe about our supply chain today versus tomorrows demand? How can we mirror the Dutch food successes and the Chinese bamboo tree? How can we live on a different kind of value? Where does a soul search take us...whatever aspect of the pulses trade we are a part of?

This industry remains an exciting dynamic place...

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Sprouting lucrative gaps in nutrient-rich pulses value chain



By SRIDHAR IRIVENTI
Co-Founder and Director, GoBhaarati Agro Industries & Services Pvt Ltd.



The pulses scenario in India poses strange paradoxes, viewed from the standpoint of the global pulses industry. Let's explore it from three viewpoints and see whether joining these points can connect the industry to a pot of gold.

Firstly, most pulses qualify to be called Smart Food as they are good for the consumer, the planet, and the farmer. Pulses are good for the consumer as they supply vegetarian protein and other vital nutrients. They are good for the planet as they require less or no urea to grow as pulses fix nitrogen in the soil.

As domestic demand for pulses has always been met by imports, pulses are evidently good for the farmer too, as there is demand for his produce. So why do farmers treat it as a secondary crop?

Secondly, in the last 50+ years, overall acreage, productivity and consumption patterns of pulses haven't changed much. Total production has stood at around 18 million tonnes and overall acreage at around 23 million hectares.

There has been surplus production in recent times as a reaction to the demand-supply situation and perhaps profitability spurred extra production. Why wasn't this production encouraged? Is the government's lopsided policy the sole cause?

Finally, while India is the largest producer, consumer and importer of pulses, it is indeed an irony that protein in Indian diets is pathetically less than 50% of RDA (Recommended Daily Allowance), indicating a strong case of Protein Energy Malnutrition (PEM). Data from National Nutrition Monitoring Bureau (NNMB) surveys vouch for this (for more details, visit <http://ninindia.org/DietaryGuidelinesforNINwebsite.pdf>). As a thumb rule, every kilogram of body weight requires 1 gram of protein in our daily diets; failing which it may become difficult to perform simple tasks and lead to weakness and fatigue. When pulse-based recipes are the backbone of every kitchen in India, why are we suffering from PEM? Is pulse protein costly? Is it not available? Or is it not sufficient?

While the last 60 years have seen a metamorphosis in the food business/industry, surprisingly, the developments have not reached pulses and related industry. Government subsidies, the Public Distribution System (PDS), and research and dissemination of high-yielding varieties continue to have headroom for improvement.

There is evidence of strong fundamentals for a great business opportunity, such as a strong demand curve, high yielding productivity techniques, latest communication and social media, integration of the rural economy through the primary sector, latest processing machinery, environmental sensitivity, changing dietary patterns across the world, demand for vegetarian protein, and modern packaging and logistical solutions, among others.

The recent decision by the Indian government to slap heavy import duties on pulses and allowing their export has put many countries supplying pulses to India at risk of uncertain markets. This can have drastic consequences on sowing patterns in the future.

Given this uncertainty, is there not an opportunity of creating value added products rather than just supplying a commodity?

All these fundamentals have co-created a context for innovation. There are only a handful of value added pulse products in weaning foods, geriatric foods, athletic diets, and ready-to-eat and ready-to-cook segments.

There is plenty of scope to attract new market segments and stimulate new consumption patterns for value added products by enrolling and partnering with Small and Medium Enterprises (SMEs), NGOs, Self-help Groups (SHGs), and research institutions.

A concerted effort from all stakeholders, including the government, can regulate the pulse of the global pulses industry and unravel the opportunities behind these paradoxes.

Status and Prospects of Myanmar Pulses

By SHYAM NARSARIA, CEO, Arvee International Pte Ltd.



Pulse exports from Myanmar have grown into a \$1 billion export industry in three decades since liberalization. As the first major agricultural sector to be liberalized, in 1988, pulses offered uniquely attractive returns to both farmers and traders. By 1991, pulses surpassed rice to become Myanmar's most valuable agricultural export. From less than 100,000 tons in 1988, exports have increased to nearly 1.5 million tons in 2016.

BUT...

The Myanmar pulses market was sent into disarray on August 21, 2017, when the Foreign Trade Department under the Indian Ministry of Commerce and Industry said it had limited the import of black beans (urad) and mung beans into India to 300,000 tonnes per fiscal year. That came after the same department announced a 200,000 tonne import limit on pigeon peas (tur/arhar) on August 5 2017. There have been no such restrictions in the past.

The severe restriction by India limiting the amount of pulse varieties from Myanmar has quickly and adversely affected the Myanmar pulses market. The restriction was intended to lift Indian domestic price above the specified Minimum Support Price (MSP) of pulses in India. However, this has put pressure on producers in Myanmar who rely heavily on export to India.

Myanmar is examining ways to expand and re-classify Myanmar's pulses destined for export. Myanmar is also trying to solve the present problem; many ways are being explored. But the damage to the Myanmar market is done, and exposed the weaknesses of the pulses market. <https://www.mmtimes.com/news/myanmar-india-continue-pulse-and-bean-price-negotiations.html>

Now, concerns among local traders over the potential collapse of

the local pulses and bean market are mounting.

Because of this restriction, not only the farmers and factory workers are affected, but also more than hundreds of thousands of service providers related to this industry are badly affected.

Most of the Pulses are being sold below the cost of production and many businesses are suffering losses. That's why Myanmar Farmers are voicing their concerns and the future of Pulses production in Myanmar is uncertain.

Some exports of pulses are made to countries like China, Bangladesh, Nepal, UAE and Pakistan at low prices; but these countries have also fulfilled their import requirements as a result of which demand has become stagnant.

Stock and Prices

At this point in time, Myanmar is left with over a million metric tons of various variety of pulses (including the current harvest) still with the farmers and they are keeping a close watch on the further notification from the foreign Trade Department under the Indian Ministry of Commerce and Industry as the Quantitative Restriction was made until 31st March 2018.

After the recent visit on 6th Sep 2017 by Hon'ble Prime Minister of India Sri Narendra Modi where he said "We would like to contribute to Myanmar's development efforts as part of our 'Sabka Saath Sabka Vikas' (Development for all) initiative", Myanmar farmers are still hopeful.

Now is the time for the Indian counterpart to decide whether they still consider Myanmar farmers as friends forever!

Precision Health Retailing: How Big Data and Artificial Intelligence may Accelerate Success for Pulse-Based Food Convergent Innovation

By LAURETTE DUBÉ, BOB CHAPMAN, JIAN YUN NIE & SHAWN T. BROWN

In an earlier article from the convergent innovation series, we reported that recent advances in the family of “omics” technologies have enabled the new sectors of precision food and precision nutrition, i.e., the tailoring of food and diet to specific individual biological predispositions that impact health and diseases (Prakash, Bacon, & Dubé, 2017). Similar technologies have even a longer history in precision medicine (Hizel, Tremblay, Bartlett, & Hamet, 2017), i.e., the tailoring of disease management as a function of molecular-level information on one or the other facets of a patient’s biology. Big data and artificial intelligence are also extensively used, not only in the biological sphere, but as tools by businesses for accurate and real-time targeting of consumers; thus, fueling the simultaneous alignment of supply and demand with business strategy and operation. As a core capability of convergent innovation, we propose precision health retailing as a next frontier to accelerate what big data and artificial intelligence can contribute through food to improving population health, containing healthcare costs, and contributing to economic performance and growth of the agri-food sector. Pulses are perfect test beds to explore such possibilities.

The growing global production and utilization of pulses as affordable commodities that are naturally good for the health of people and planet, offers an idea with great potential for break-through innovation. Artificial intelligence and big data will significantly boost societal impacts in food and health by bridging the many silos of science, technologies and consumer insights needed to create more targeted food innovation. This future food is located at the converging point where it is at the same time: what consumers want; what they need for their vitality and health; what they can and want to pay; what the planet can offer in a sustainable way; and what the agriculture and food sectors can and want to produce in a cost-effective and profitable manner (see Figure 1). Creating an adequate supply and demand for this 21st century food requires transforming both our methods of innovation as well as the current practices of a broad spectrum of stakeholders, including consumers.

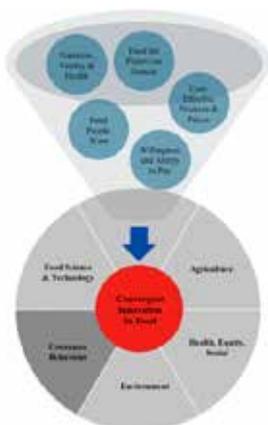


Figure 1
Convergent innovation sweet spot

In a society entering the 4th industrial revolution with no clear boundaries between the biological, physical, and digital spheres, retail is a gateway where individuals intersect with larger systems and organizations in agriculture, food, health, and other social and economic sectors impacting their choice. Powered by advanced digital platforms and infrastructure with leading scientific knowledge on the drivers of human behavior in varying contexts, Precision Health Retailing (PHR) will modernize food commercialization by providing deep insights into consumer minds and industry trends. These insights help develop, understand and balance food supply with demand, bringing together all science and technologies necessary for end-to-end solutions to successful food innovation. PHR operates at the frontiers of knowledge not only in the behavioral and social sciences but also in neuroscience, data, computer, and complexity science to develop an integrative and solution-oriented translational paradigm (Figure 2).

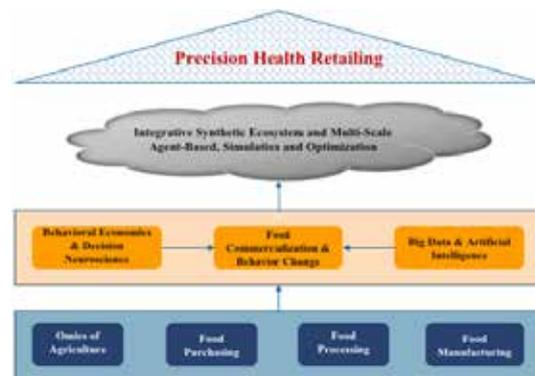


Figure 2
Precision health retail system platform

As examples of how PHR can help commercialization, consider the complexity of understanding relationships between people’s behaviors in food consumption and choice, and the systems involved in supplying the products to markets. To garner a better understanding and to provide decision makers with a tool for testing new ideas, products and policies, we are building a modular artificial intelligence-enabled digital platform to inform the design, go-to-market strategy and performance monitoring of food convergent innovation. We have started to develop a component to extract insights from user-generated content through social media (e.g. Twitter, Facebook), with a rich diversity of consumer insights on sometimes conflicting demand drivers to inform break-through innovation (Dubé, Du, McRae, Jayaraman, & Nie, 2018). Results show that positive and negative drivers of demands for food convergent innovation, as expressed in this digital social media corpus, bear on their own belief systems, experiences and culture, as well as the characteristics of the food they associate with and the expected consequences that motivate their behavior. We also

are planning to build a technology we call the “virtual marketplace”. This virtual marketplace is a computer laboratory to rapidly test new products’ marketability, ability to enhance population health, and potential strategies for enhancing both. The “virtual marketplace” can be best thought of as a SimCity for food systems, i.e. like a simulation video game, there will be virtual people that interact with each other and their environment to update their status as well as the virtual world they inhabit. We will utilize and enhance existing synthetic ecosystems (i.e. datasets that are derived from census information to provide a realistic set of people and places) of Canada including information regarding food purchasing, processing, and manufacturing location as a basis for the “virtual marketplace”. We will create simulations with rules that are derived from data and studies from other components of this work. By changing various inputs to the simulation, decision-makers can perform a number of pilot experiments in the computer before attempting them in the real world, allowing for exploration of much larger space of possibilities thus finding the most impactful solutions rapidly.

Information and digital technologies are rapidly replacing fuel and other physical resources as drivers of both social and economic change. For food, pulses are likely front-runners where artificial intelligence and other digital technology can blend the best of tradition and modernity creating balanced societies all around the world that can better afford health, wealth and wellbeing for all.

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Author Biographies



Laurette Dubé

Dr. Dubé is a Full Professor and holds the James McGill Chair of consumer and lifestyle psychology and marketing at the Desautels Faculty of Management of McGill University, Canada. Her research interest bears on the study of affects and behavioural economic processes underlying consumption and lifestyle behavior and how such knowledge can inspire more effective health and marketing communications in both real-life and technology-supported media. She is the Founding Chair and Scientific Director of the McGill Centre for the Convergence of Health and Economics. The MCCHE was created to foster partnerships among scientists and decision-makers from all sectors of society to encourage a more ambitious notion of what can be done for more effective health management and novel pathways for social and business innovation.



Bob Chapman

Dr. Chapman is the Principal Research Officer for the National Research Council Canada’s (NRC) Aquatic & Crop Resource Development Portfolio based out of Charlottetown, PEI. He is responsible for leading strategic projects to develop new functional ingredients including nutritional oils and alternate proteins. Dr. Chapman has been working with McGill’s Food Convergent Innovation group for the past 3 years to advance new product development projects for both large and small companies. Dr. Chapman holds a Ph.D. in Organic Chemistry from the University of British Columbia and is an Adjunct Professor with the Chemistry Department at the University of Prince Edward Island. He has published widely, holds several patents, has presented at numerous scientific symposia, and is the recipient of many awards, including a postdoctoral fellowship from the Natural Sciences and Engineering Research Council of Canada (NSERC) tenured at Harvard University. Additionally, Dr. Chapman is a member the Atlantic Veterinary College Advisory Council; the Advisory Board for the American Botanical Council; the recording secretary for ASTM D37.04; and a Board Member for both the PEI BioAlliance and the Natural Health Product Research Society where he also serves as vice-president.



Jian-Yun Nie

Dr. Jian-Yun Nie is a Professor in Computer Science at the University of Montreal, Canada, and is associated with the IVADO institute. He obtained a PhD degree from Université Joseph Fourier of Grenoble, France. He specializes in information retrieval, natural language processing, and artificial intelligence. He has been doing research in these areas for 30 years and has published many papers on these topics. He has served as general chair and PC chair for several conferences in the area of information retrieval. He is on the board of several international journals, including *Information Retrieval Journal*. He has been an invited researcher at several institutions (Tsinghua University, Peking University) and companies (Microsoft Research, Baidu, and Yahoo!).



Shawn Brown

Dr. Brown is the Associate Director of Research Software Development at the McGill Centre for Integrative Neuroscience at McGill University. He leads a team of developers providing infrastructure for executing reproducible, reliable computational pipelines for large-scale simulation and neuroscience on high-performance and cloud based computing platforms. He received his PhD. in Chemistry from the University of Georgia in 2001 and over the last 25 years has worked in high-performance computing, computational infrastructure and scientific simulation. Prior to joining McGill, he was the Director of Public Health Applications at the Pittsburgh Supercomputing Center at Carnegie Mellon University, Director of Computational Research at the Global Obesity Center at Johns Hopkins University, and Assistant Professor of Biostatistics at the University of Pittsburgh Graduate School of Public Health. His interests include agent-based modeling of populations, reproducibility, sharing, and publication of computation and data, and public health simulation modelling.

Technical Analysis of Chana Futures



The world's one and only Chana (desi chickpea) futures contracts are traded in India on National Commodity and Derivatives Exchange (NCDEX).

The NCDEX Chana futures are struggling to find any momentum at all. For the past couple of months it has been moving in a broad range from 3600-4000 levels. Though, there was indication of a possible bottom around 3654 in the month of January 2018, at present there are no clear signs of the same. A decisive close above 3900 could be the trigger for the expected upside towards 4400 in the coming weeks. Unexpected fall below 3600 could cause doubts on our bullish view.

Technical Outlook for Indian Rupee

THE USD-INR

The Indian rupee was little changed against the dollar in afternoon trade, as greenback sales by state-run lenders amid broad weakness in the U.S. currency offset losses triggered by weak local and regional shares on renewed concerns over trade war.

US President Donald Trump's decision to impose tariffs, in what according to him was necessary to address the unfair trade situation, has kindled fears of a trade war between the U.S. and other major economies.

The major implications of the tariffs imposed by President Donald Trump as part of his election agenda that many in the markets feared are:

1. Risk of a trade war and retaliatory measures from other countries
2. Inflationary - as metal prices rise (US domestic firms unlikely to ramp-up production rapidly)
3. USD negative, if other countries retaliate (likely)
4. China could be less hurt than thought (high domestic absorption rate)

We expect weakness in the Rupee to continue with bouts of appreciation on and off. Global dollar strength on the back of rate hikes could bolster the dollar and with falling equity markets, lack of substantial inflows chasing emerging markets could add to Rupee woes.

A potential upside to 65.95/66.05 is on the cards in the coming months. Any corrective dips to 64.50 is expected to hold now. It is hard to say if prices can follow-through higher from there. But, with present variables, it might look difficult.

Conclusion: We see the Rupee weakening, in line with a stronger dollar overseas. Technically, we expect some short-term strength initially followed by a rebound higher again.

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Pulse Canada Update



Pulse growers, Saskatchewan Pulse Growers (SPG), Pulse Canada, and many others have worked over the past number of weeks to ensure that the issue of pulse trade with India was a top priority for Prime Minister Trudeau's trip to India this week. Lee Moats, from Riceton, SK, Chair of Pulse Canada's Board of Directors and SPG Board member, along with PulseCanada CEO Gordon Bacon, were in India in February focused on Canada's top pulse priorities. Specifically, the Canadian pulse industry was asking that Canada press for predictability and transparency in India's trade policies relating to pulses, to ensure pulses already enroute be exempt from policy changes, and that Canada not be required to fumigate pulse shipments, as there is no science-based risk associated with Canadian pulse shipments.

We are pleased that Prime Ministers Trudeau and Modi have agreed to work closely together to finalize an arrangement within 2018, to enable the export of Canadian pulses to India free from pests of quarantine importance, with mutually acceptable technological protocols. The Prime Ministers also agreed to the importance of transparency and predictability of market access conditions.

More work in the remainder of 2018 is needed, to ensure that the vision agreed by the Prime Ministers today, results in the outcomes that Saskatchewan pulse producers need to see. While today's agreement does not resolve the market access challenges in our largest market for pulses, it sets a clear end goal, with timelines, for government officials and industry in India and Canada to address the fumigation requirements.



GPC Annual Convention Pulses 2018
May 7-10, 2018, Colombo, Sri Lanka



Pulse & Special Crops Convention
July 10-12, 2018
Delta Hotel, Regina, Canada

Australian Grains Industry Conference 2018 (AGIC 2018)
1-2 August 2018, Crown Promenade, Melbourne
(AGIC Golf Day on 31 July)