

An Overview of the Grain Economy Ecosystem

In closing our compendium of articles from 2022-Q1, we outlined our priorities for the upcoming quarter – deepening producer engagement, recasting the Prairie image in global markets, and expanding end-market research efforts. The articles we will post in the next three months will be related, directly or indirectly, to one or more of these themes, which are all in pursuit of our core trade-facilitation mission.

Here we introduce an “ecosystem” concept to depict our grain-economy, a phrase used in a variety of contexts to describe production-systems or industry-clusters. Without getting hung up on semantics, we find it to be a useful concept in capturing the essence of our grain-economy – how it is structured and how it functions. At the core of this ecosystem are production-units, aka farming-enterprises, but these units do not function in a vacuum: they rely on the myriad of associations, agencies, institutions, and enterprises that we try to layer in our ecosystem depiction.

Our core mission is trade-facilitation: to open new export-markets for producers whereby they can diversify to higher-value crops with higher margins. In essence, this is a *paradigm-shift* away from bulk-trades to direct-sales fulfilled through containerized shipments with crop-integrity intact. In this regard, however, we face a formidable challenge: the world knows us as a source of bulk-exports but has little awareness of our capacity to produce a huge variety of high-quality crops that can be purchased directly from primary production sources, our highly advanced farms.

Before we can even venture into our trade-facilitation mission in earnest, we must recast our global image. To this end, we developed a 6-part framework to promote the virtues of our grain-economy in overseas markets: advanced-farms, research-capacity, crop-variety, quality-assurance, sustainability, and container-logistics. At the core of this new global-image we are trying to recast is our production capacity, portrayed through farm-profiles – hundreds of them we will develop and showcase on our portal to convey the sophistication and diversity of our farm-economy.

The region’s family-farming traditions played a huge role in advancing the state of the grain-economy, which producers had the wisdom to perpetuate for generations. But they were not solo-actors in this success story, they had the entire grain-ecosystem to draw on. As in the past, this ecosystem is going to play a crucial role in achieving the *paradigm-shift* we are calling for. Thus, we must convey the virtues of every piece of our grain-ecosystem in recasting our image in global markets.

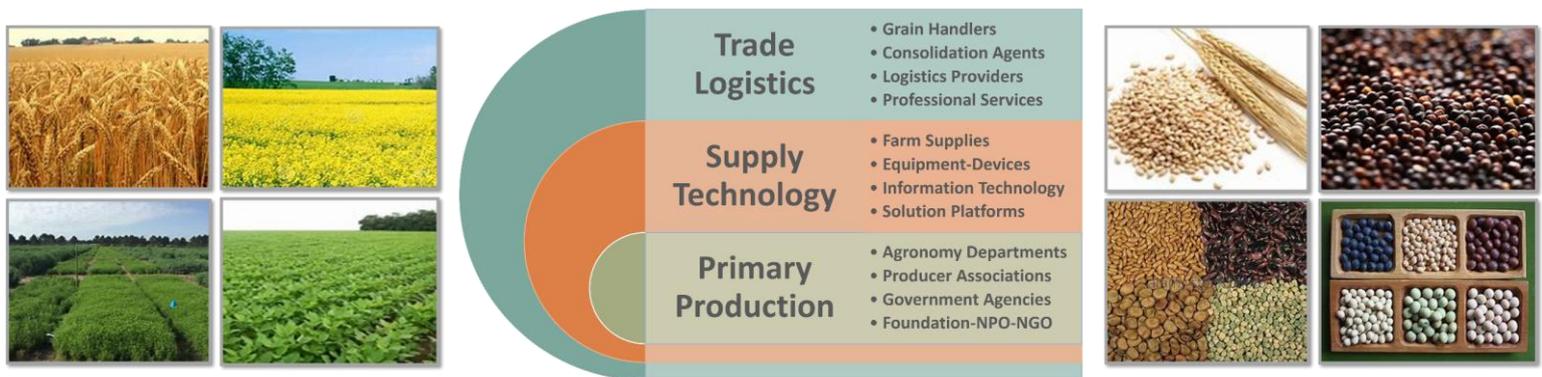
The same way as we rely on producer-engagement in charting our course, and depend on them in preparing farm-profiles, we must also reach out to all the other constituents of the grain-ecosystem. We need their support and participation to be able to leverage their virtues in recasting our image on the global stage. To this end,

we try to compartmentalize these constituencies into what we call PGP-chapters. Here we start with three main chapters – primary-production, supply-technology, and trade-logistics. In time we will breakdown these domains into sub-chapters with initiatives to reach out to all the constituents of the grain-ecosystem – we will be posting many more articles on these initiatives in the coming months.

The first of our chapters is *primary production*, which we break down into four groups of constituents. Our scientific-capacity comes from the region’s agronomy departments, at the leading-edge of this frontier worldwide, with applied research into seed varieties, soil conditions, and farming methods. Producers take pride in their independence but draw on, and benefit from, the collective voice and efforts of their trade-associations. Both federal and provincial governments are involved in supporting agriculture in various capacities. There are also NPOs and NGOs that lend support to the sector through their advocacy for food-security and sustainability.

The second chapter we hope to establish is *supply-technology*, again in four main sections. Of vital importance is farm-supplies, including seeds, fertilizers, nutrients, pesticides, fuel, and other essential inputs into farming operations; the Prairie region is blessed with not only all the raw materials but also well-developed distribution systems. As important as inputs in crop-variety and quality-differentiation, are technology elements in farming, which we group into two: equipment-devices and information-technology. We also separate out an emerging technology domain, integrated solution providers, as well as platforms with multiple solution offerings.

The third chapter is of vital importance to our mission, *trade-logistics*. Unlike in bulk-trades where producer-responsibilities end at farm-gates or nearby terminals, direct-sales require further service arrangements down the supply-chain. Unless they have their own cleaning, grading, and container-loading capacity, producers will need grain-handling services. Most contracts will require consolidation, through third-parties or cooperation among producers. Containerized exports will require logistics companies to provide the necessary intermodal arrangements. Also, direct-sales are likely to involve licensed exporters, as well as finance, insurance, and legal support.



Primary Production Chapter

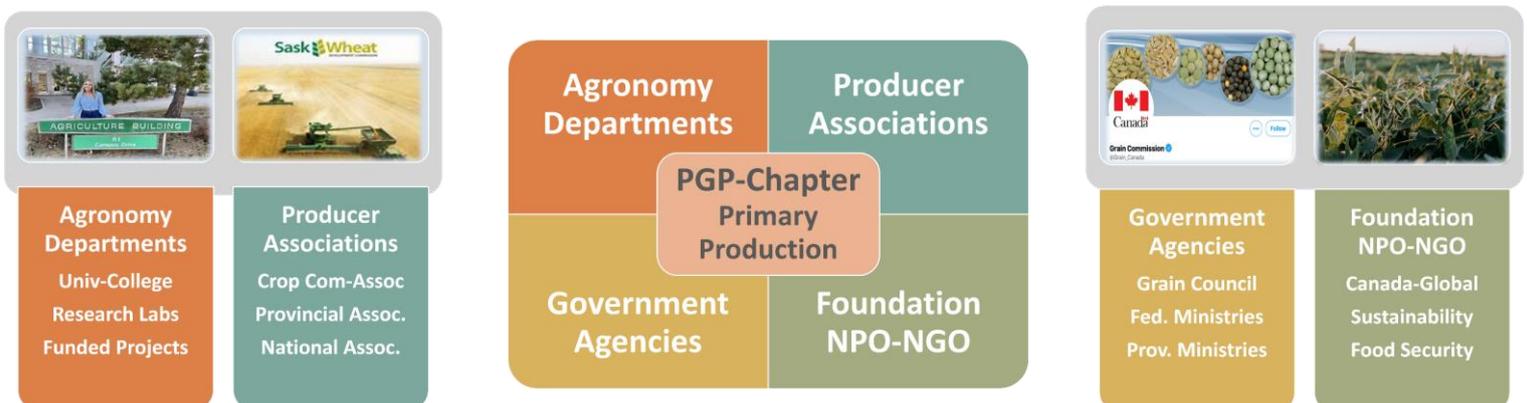
Farming-enterprises are the primary producers and our core constituency. We extol their virtues through *farm-profiles* and cast them as the primary sources of grains importers can buy from. But farms do not operate alone in the primary-production sphere, they draw on the support of many other elements of the grain-ecosystem. We recognize the crucial importance of these elements and their contributions, and, in recasting our global image, give them as much credence as individual farms.

Agronomy Departments: The region’s agricultural research capacity is unmatched, with programs and labs at the service of not only producers but also buyers. With top-notch resources, the research community is not only renowned academically but also engaged in hands-on applied research. They have been driving advances in all aspects of farming, from yield-increases to crop-diversification – initially the shift from wheat to canola, and later turning the region into a prime source of pulses.

Advances in seed-strains, and their adaptation to local soil conditions, contributed greatly to yield and quality improvements, and will continue to drive diversification to specialty-crops, be it higher-grade staples or new varieties. Also, agronomists are actively involved in field-operations, providing guidance to farmers with respect to crop-choices most suitable to varying soil conditions across the region, as well as best-practices in seeding, fertilizer-chemical applications, and harvesting-methods.

Producer Associations: Deregulation and privatization efforts changed the face of our grain-economy from a single-desk-monopoly to one driven by market forces, but it did not leave producers alone to fend for themselves. Many crop development commissions emerged, basically producer led associations funded by surcharges on crop sales, to represent and serve the collective interests of producers of those crops through production-research, market-development, and other advocacy functions.

Every major crop grouping across the Prairies – wheat and canola, as well as others like pulses, barley, and flax – has its provincial commission, all led by producer representatives. Also, there are umbrella organizations like Agricultural Producers Association of Saskatchewan, not a creature of crop-commissions but an offshoot of Saskatchewan Association of Rural Municipalities. Alberta and Manitoba each has its Association of Agricultural Societies, as well as other producer advocacy groups.



Government Agencies: After decades of privatization and deregulation, we may think this sector is driven solely by market-forces, free from all forms of government intervention. But grains are part of the food-chain and are strictly regulated. To ensure crop quality and integrity, we have elaborate crop grading-classification systems in place, as well as testing-inspection procedures, not to mention identity-preservation regulations of crucial importance in containerized grain exports.

We have the *Canadian Grain Commission* with broad ranging oversight, inspection, licensing, and reporting responsibilities. Moreover, there is *Agriculture and Agri-Food Canada*, a ministry with a broad policy and regulatory mandate over agriculture across the entire production, processing, and marketing spectrum. Also, there is *Prairie Economic Development Canada*, responsible for the regional diversification fund, among other things, aimed at supporting agriculture. At the same time, each province has its own agriculture, trade, and economic-development ministries.

Foundations/NPOs/NGOs: In an era when climate-change poses existential threats to our existence, there are numerous foundations, non-profit or non-governmental organizations focused on protecting the environment and upholding sustainability in agriculture. Perhaps this awakening is relatively new, but food-security has been a big concern for much longer, healthy-diets in rich countries and subsistence in poor – both closely tied to agriculture and getting a lot of attention from NPOs or NGOs.

As a high-cost region, we may not look like the best place to feed the world, but our crop-yields are higher than most low-cost producers, and we grow grains without irrigation. We may be pushing the grain-economy towards higher-value crops, but we will still be producing more protein from every acre of land we cultivate. Most significantly, by some accounts Prairie agriculture has become a carbon-sink rather than a source of carbon-emissions. All this speak to our sustainability record, which is getting a lot of attention from NPOs, among them Canada West Foundation.

Our goal: Here we tried to identify the support-environment surrounding our primary production sources from four different angles. Our goal is to leverage each one as a PGP-chapter, to gain support for and participation in our core mission:

- Research Capacity: In extolling the virtues of our grain-ecosystem, we hope to rely on our cutting-edge research capacity in agronomy through a series of *case-studies* to promote our advanced seed-breeds and farming-practices.
- Producer Associations: We will lean on all producer-associations to help us prepare *crop-profiles*, the full range of grades and varieties grown across the Prairies while soliciting support and funding for our market-research efforts.
- Government Agencies: There is a burden that falls on governments to recast our global image to facilitate new export channels to overseas markets, with emphasis on the strength of our regulations in the *quality-assurance* domain.
- NPOs-NGOs: There is considerable interest on the part of these organizations in our grain sector's *sustainability-record*; we will draw on their work to promote our grain-exports when the world is facing such a dire climate-crisis.

Supply and Technology Chapter

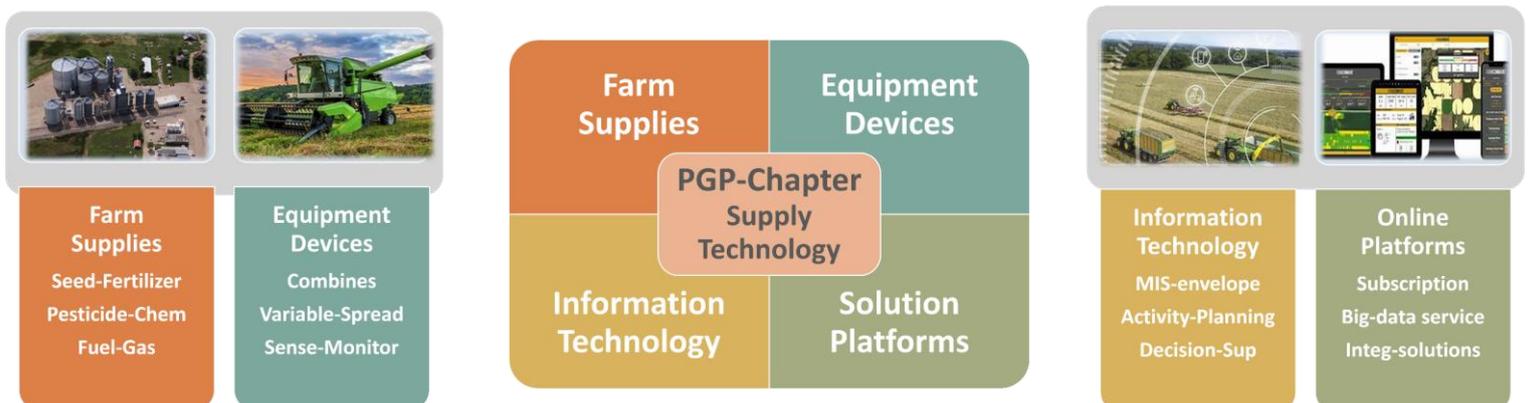
All agricultural regions around the world recognize the imperative of technological advancement, and those who can afford them have access to the latest technologies from wherever they happen to be farming. Our region may not have a deep well of new technologies we can call our own, but we enjoy huge advantages in technology adaptation and application by drawing on our deep knowledge of applied-agronomy. Also, we sit on the best sources of farm-inputs, especially minerals used in fertilizers.

Farm Supplies: The Prairie region has the world’s largest and richest mineral-base for fertilizers, home to Nutrien that came into being by the merger of PotashCorp and Agrium. Through its distribution network, Prairie farmers have access to the full spectrum of fertilizers (potash, nitrogen, phosphate, or sulfur) as well as nutrients, chemicals, and pesticides. Combined with the seed-supply, driven by advanced agronomy, no other region in the world is as rich as the Prairies in farm-inputs.

The region’s producers are also served by various coops, the largest among them Federated Coop provides anything a farm would need – nutrients, pesticides, seeds, supplies, and fuels, latter including propane and oil that it produces or refines. Now the company is entering the bio-fuel domain with a large canola-crushing plant for this purpose. In essence, the region is served through multiple channels, with a huge variety of premium farm-supplies delivered to their doorsteps at competitive prices.

Equipment-Devices: The grain economy has undergone a massive technology-transformation, now with latest farm-equipment in action using GPS for position-tracking and automated-guidance. Most machines have variable-rate-spreading devices to apply the desired amounts of inputs in the field – seeds, fertilizers, and pesticides. Most also have monitors to detect moisture-levels and soil-conditions, augmented by drones as they become more affordable, or are shared collectively.

The results of this transformation are evident from notable yield-increases and crop-quality improvements, but the process is by no means over; even more is expected to come with advanced sensing and spreading devices with AI-driven functionality and drone-usage paving the way for precision-farming. All these advances do not just increase yields but also help improve crop quality, and ability to grow specific grades with desired attributes – aiding our specialization-drive to high-value crops.



Info-Tech: Farm operators have wireless access to field-data and actively use that data for integrated activity-planning purposes, and in real-time for decision-support – seeding to fertilizing to growth to harvesting. With so much data and need for precision-applications, increasingly more sophisticated farm-management-systems are being used, with the added benefits of tracking and managing farm-inputs and crop-yields. The MIS-envelope is being pushed further by big-data availability, especially on weather-conditions, which in turn facilitates more effective seeding and harvesting practices, as well as yield forecasts for sales-and-marketing purposes.

All these new technology applications pave the way to achieving higher quality crops with desired attributes. Also, the ability to control and monitor growth conditions allow farmers to predict crop conditions, a huge benefit in fulfilling sales-orders to buyer-specifications. Easy to use and reliable testing-and-sampling technologies are allowing producers to report crop-conditions to buyers prior to shipping, comforting them that they are getting what they ordered or were promised. New technologies are literally turning farming into a grow-to-order business, perhaps not quite to manufacturing-standards, but still a far-cry from what buyers get from bulk-stocks.

Solution Platforms: A new trend in the industry, not unique to but quite prevalent in farming, is the emergence of online-platforms that store field-data, and combined with data from other sources, offer online solutions on a subscription basis – not just farm-management but also sales-management. The former offers affordable solutions for many producers but the latter borders on online-sales, not very effective in this domain as scope for one-click-sales are limited for export-trades.

Another trend is for large vendors acquiring (or investing in) a variety of solution platforms to develop large customer bases, to be able to sell a wider range of other offerings – for example TELUS Agriculture, with an interest in the target-base for mobile service offerings of its own. There are also consolidation initiatives through traditional M&A strategies, a trend likely to continue as the market is fragmented with vendors offering their own farm-grown application suits to a broader audience.

Our goal: In creating a PGP-chapter of suppliers, manufacturers, technology developers, and solution-providers, our goal is to promote our grain-economy in an advanced light in overseas export markets. To that end, we have a 3-prong agenda:

- Technology profiles: We see great virtues in extolling the advanced state of our farm-economy through *technology-profiles* to augment our farm-profiles, sponsored by equipment-vendors, solution-providers, or third-parties.
- Sponsored pages: As we offer to producers, our portal will have dedicated sections/pages for equipment or device manufacturers, as well as solution or application providers, to promote themselves in domestic or export markets.
- Event sponsorship: We hold townhalls (virtual and in-person), webinars, and other events that can be sponsored by our chapter-members, following our usual venues or with content prepared or commissioned by the sponsors.

Trade and Logistics Chapter

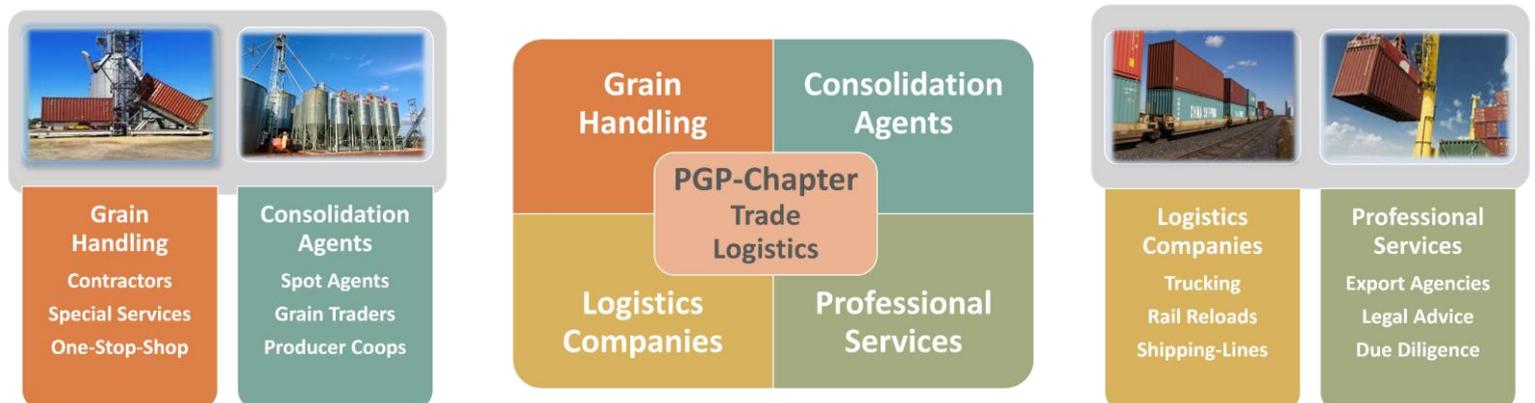
There is little need for trade or logistics agents in bulk-trades, since the custodians of those trades, grain-companies, internalize those functions. Through direct-sales channels, however, these types of services gain prominence, justifying the case for a PGP-chapter in this domain. If the costs of these services concern you, do not worry as they will be embedded in the prices buyers pay – like transport and storage costs, at origin and destination, you do not even see but are built into bulk-system costs.

Grain Handling: In rare cases direct-sales can be executed from farm-gates to final-destinations through logistics service providers, with minimal service requirements in sampling and testing of grains stored in your own farm-bins. But in most cases, grain-handlers will be involved in cleaning, grading, storage, bagging, loading, etc. – one stop service-arrangements, or through multiple service-providers that your logistics agent will coordinate before shipping to designated final destinations.

In today’s grain scene across the Prairies, this is not a very visible service segment, but it exists – in the open market or at the premises of grain-companies that are into containerized exports, like in the pulse-sector. In trying to cultivate more direct-sales, we are paying utmost attention to these service-needs by encouraging our logistics-partner to provide them as part of their rail-reload operations or supporting the emergence of new grain-handling companies with integrated service offerings.

Consolidators: As our trade facilitation efforts start bearing fruit, most contract sales will be too large to be fulfilled by any one producer. Even large farms, 20,000 acres plus, will not have enough volume to fulfill large orders, or would be reluctant to commit a large part of their output to any one buyer or contract. As we discussed in one of our previous articles, consolidation will become standard practice to fulfill most contract orders, at least those that are large enough to sustain steady flows.

Initially, opportunistic consolidation-agents will emerge to claim the high margins they foresee in direct-sales. In time *bona fide* consolidators may surface, but by taking on contracting-functions these intermediaries will be able to claim the lion’s share of the margins. The model that would best serve producer-interests is project-based cooperation – not necessarily full-fledged coops but contract-partnerships – to fulfill orders collectively, to extract the highest margins possible from direct-sales.



Logistics Companies: The vision we have for the grain-economy contemplates millions of tons of containerized exports, not sporadic shipments of convenience as we have now, but organized flows of point-to-point deliveries to final destinations. Currently, we do not have too many logistics-companies handling containerized grain-exports. Over the last two decades huge strides were made in moving forest-products in containers across the Pacific to Asia – initially pulp and lumber, now even logs. In the coming years, we expect similar trends to take hold in grain-trades.

There are a lot of logistics chores involved at the origins of these trades, but the real challenge is pulling containers inland – or moving grains to where containers can be found, mostly near coastal-ports. As we discussed in a previous article, the logistics of pulling containers inland requires an understanding container-flows across the ocean and working with shipping-lines. Now we have a partner who understands these challenges and is willing to dedicate the necessary resources to it. In time, as volumes develop, many more logistics-companies will emerge to serve these trades.

Professional Services: While we extol the virtues of direct-sales, made under sales-contracts between producers and overseas-buyers, current regulations require these exports to go through CGC-licensed parties – the only way producers can get export-insurance. Until further changes are made, producers are captive to licensed grain-exporters. On the bright side, there are numerous licensed-parties to compete over these trades so that producers do not have to pay high commissions. In time large producers or producer-coops can get licenses, and thereby insurance-coverage.

Direct-sales contracts between producers and buyers will also require legal scrutiny by lawyers with expertise in international trade laws, trade-dispute resolutions, and arbitration-channels. This is another professional service line producers will require, at least if they want to protect their interests and get paid fully and regularly. In this vein, we also recommend proper due diligence into prospective buyers before entering contracts, yet another burden that comes with direct-sales channels. This can be done through legal channels or other qualified advisory service providers.

Our goal: Our plan is to create another PGP-chapter around this support-cluster – grain-handlers, consolidation-agents, logistics-companies, and other professional service providers. The main tools we intend to use in this regard are the following:

- Strategic-partners: Like we have in the logistics domain, we can establish strategic-partnerships with qualified service-providers, by giving them preferred-partner status and help them streamline their service offerings.
- Portal-promotion: Also, any agent or service-provider can promote their services through dedicated pages/sections to reach our core-members (or following at large) like we intend to do in the supply-technology domain.
- Advertising: Our following is now in the thousands, and still growing, perhaps not social-media scale but substantial for a cohesive audience many service-providers may want to leverage for advertising or promotional purposes.