

FOCUS: BUSINESS/STRATEGY

Tomorrow's Agriculture Evolves

In the fifty years from 1980 to 2030, the earth's population will nearly double to nearly 8.2 billion people. By 2050, earth's population is expected to reach 9.3 billion. Feeding this expanded population is agriculture's greatest challenge and opportunity.

Besides more people, per person demand for calories is expected to continue to increase as well. According to FAOSTAT data, demand for dietary energy measured in kilocalories (kcal) per capita per day is projected to increase globally from 2358 kcal/capita/day during the period 1964-66 to 3050 kcal/capita/day in 2030.

In addition to simply being larger and in search of more kilocalories of energy per person, this expanded world population will have greater available financial resources. As more people upgrade their economic status, demand for higher quality fibers, more nutritious food and feed products and energy and energy-based products (e.g., fertilizers) will grow.



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“How does a planet sustain a growing population with limited resources? We're finding out here and now. Tomorrow's agriculture is evolving and unfolding to reveal businesses that deliver new innovations, new technologies, and new alliances. It is critically important to understand what drives these forces to best prepare and participate.”

Critical to all agricultural production is water. At present, nearly 70-80 % of fresh water use is allocated to agricultural crop and animal production. A larger population is expected to directly compete with agriculture for water use through increased demand for fresh water for drinking, sanitation and industrial purposes.

Preserving available arable land resources is essential to meeting the food, feed and fiber needs

that will accompany long-term population growth. With more people relying on relatively fewer hectares, maintaining soil fertility, maximizing use of soil-derived nutrients and avoiding degradation of arable hectares (e.g., soil erosion) are key objectives globally.

Effective use of land and water resources to capture and transform solar energy into food, feed and fiber products requires access to energy. Currently much of the energy used in food, feed and fiber production is derived from fossil fuels. Projections are that costs of this energy, as a percentage of agricultural production, will increase with time.

Globally, the most critical sustainability issues will be soil fertility and access to clean fresh water. However, as the world moves toward the future, it seems probable that the developing world will fully embrace sustainable agricultural practices only after its population is adequately fed and clothed.

The VALUE of Innovation

As it has in the past, technological innovation will be essential to meeting the agricultural challenges of producing enough food, feed and fiber for 2030's 8.2 billion people. Increases in yield per unit of arable land will continue to be the main objective. From a crop and livestock production point of view, technological innovation in genetics and biotechnology will be especially important. These innovations will not result in immediate and complete switching from existing to new technologies; however, speed of innovation will increase and will be critical to enhancing agricultural production.

Producers will focus on, and demand, plant and animal genetics that provide increased yields, higher quality end products and more efficient use of soil, water and solar energy resources. Expect technological innovations and advancements to continue to shift crop and livestock production inputs (e.g., water use, fertilizer) and needs into base genetics and away from traditional sources. In crop production, producer decisions regarding genetics will grow in importance and will significantly influence later crop production decisions including those involving soil fertility, water use and crop protection inputs and practices. Improved livestock and crop genetics will serve as the core for enhanced agricultural production.

Given these trends, it seems likely that the business currently referred to as “seeds and traits” will increase in importance from a business and financial point of view. Value capture systems and programs that continue to develop and evolve will underpin future investment in innovation and advancement in this business. In some instances, value capture will be built on basic intellectual property instruments like patents and trademarks. Elsewhere, value capture will depend more on business collaborations involving business partners and customers. Future success in delivering technological innovation to customers will require development of a mix of partnering, patenting and go-to-market strategies and tactics that is flexible and can be adapted to a world of agriculture that will certainly continue to experience unprecedented periods of change.

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The Agribusiness Evolution

While current participants will continue to consolidate and innovate, it is not unreasonable to imagine that advances in the science of genetics, combined with growing business opportunities in agriculture, might attract new participants onto the playing field.

Business success will require delivering against customer and investor expectations and will involve development of product offerings that expand into new areas of use and potential value capture. The ability of individuals and organizations to look outside of traditional discovery and development pathways, consider market channel and value capture model alternatives and investigate new partnering/collaboration options will be key to meeting the challenges facing agriculture and benefiting from the opportunities they provide.

For more information, contact

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The Context Network provides business management and strategy consulting services to the world's leading agriculture, biotechnology and food companies and government agencies and institutions. Major areas of expertise include strategy, merger and acquisition support, valuation of new technologies, formation of alliances, and market research. The West Des Moines-based firm is composed of a core of professional consultants that is complemented by a network of hundreds of industry and subject-area experts.