

Food value chain spurs interest

Chemical producers are responding to the challenge and opportunities presented by rising food demand, as shown by the recent ICIS/Accenture survey of ICIS readers

JOHN BAKER LONDON

High food consumption growth coupled with limited arable land and fresh water supplies means we will need 1.7 Earths to feed the planet by 2030. However, 75% of chemical industry professionals surveyed are confident we can solve this problem through technology.

Among those chemical companies already active in the traditional food industry value chain, 57% of companies are definitely or considering buying or building facilities to expand their presence in the food sector. Prime areas of attraction are distribution or wholesaling of food chemicals and polymers, innovative packaging, and food processing.

Also, increasing integration and consolidation along the chain is expected, as players seek efficiencies and increased market presence.

China and India stand out as the areas with most geographic growth potential, both in

terms of food supply and food demand. Leading chemical industry players are thus targeting these countries and increasing their levels of investment there – in terms of both production and innovation/R&D.

These headline findings emerge from a recent survey of ICIS readers carried out in association with global management consultancy Accenture. More than 1,200 people responded to the online questionnaire, with 71% indicating that their company is already active in serving the food value chain in some respect. Others (17% of those not yet serving the food sector) are looking to get involved.

Indicating the wide scope of the opportunity, respondents revealed their businesses are involved in all areas of the food value chain, from seeds to fertilizers and pesticides, feed and food additives, food packaging and treatment of water and wastes from food processing. The most popular sectors are fertilizers (with 25% of companies active), plastics in agricultural uses



Demand for convenience food offers opportunities for chemical producers

(25%), food additives, such as flavours, preservatives and colourants (22%), food service packaging (22%) and food packaging (19%).

In most areas, a third or more of respondents are expecting significant growth, in excess of 10%/year, in the areas of the food chain they serve. The most confidence for high growth was displayed by those in the business of seeds, fish feed supplements and water treatment for the food industry, indicating the production-orientation of efforts in this industry.

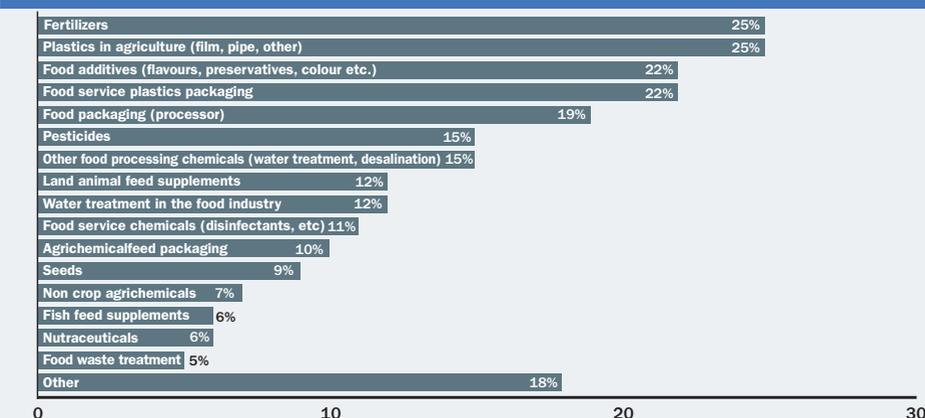
FOOD SECTOR DRIVERS

A number of drivers are active in the food sector. The growth of populations in emerging markets and their increasing affluence stand out as the leading drivers for growth, cited by over half of respondents. But trends in developed markets are also seen as key drivers, notably the shift to healthier diets, the growing demand for convenience foods and the emergence of functional and health foods.

All of these, says Paul Bjacek, head of chemicals research at Accenture, offer producers potential for new business, whether in terms of food additives and ingredients, nutraceuticals, advanced packaging or simply in added volumes.

“The rising popularity of energy and health drinks is a good example of what is happening in the marketplace,” says Bjacek. “The Millennial generation, born in the 1980s and 1990s, are prime consumers and are attracted by novel packaging design and print, including Quick Response (QR) codes, which also serve as a promotion conduit via social media.”

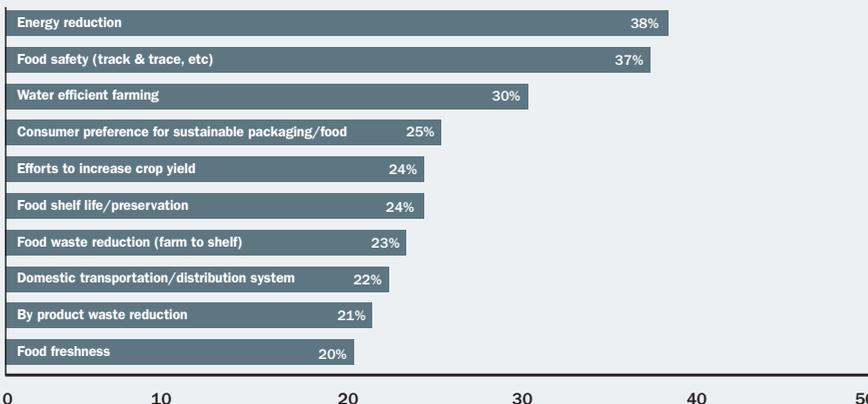
WHICH SECTORS DO YOU SERVE IN THE FOOD INDUSTRY VALUE CHAIN?



SOURCE: ICIS/Accenture reader research

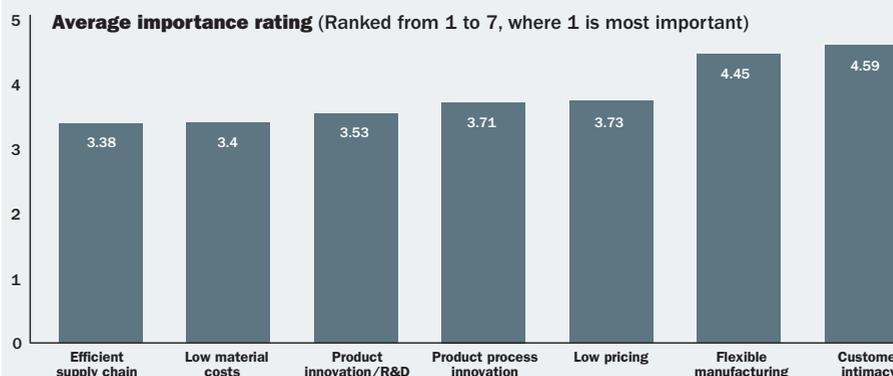


TOP 10 BIGGEST CHALLENGES FACING THE FOOD INDUSTRY VALUE CHAIN



SOURCE: ICIS/Accenture reader research

RELATIVE IMPORTANCE OF FACTORS WHEN SERVING FOOD INDUSTRY VALUE CHAIN



SOURCE: ICIS/Accenture reader research

The pressure to increase food production globally and to meet demand for more sophisticated products as dietary requirements and habits evolve creates many challenges for the food industry value chain.

Resource efficiency is among the highest concerns for the industry. Asked to nominate the five key challenges from their point of view, ICIS readers active in serving the food chain put energy reduction and water efficiency in farming as first and third, respectively. Food safety ranked as second.

Also ranking highly were consumer preferences for sustainable food and packaging and efforts to increase crop yield. Reducing food waste and increasing food shelf life also scored highly, reflecting the desire to address the issue of food spoilage along the supply chain, from farm to consumer.

Estimates put food losses as high as 40-50%, says Bjacek. Convincing consumers to buy packaged foods, rather than looser bulk produce, can



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Head of chemicals research, Accenture

allow foods to last longer, decreasing waste. Reducing food waste alone will go a long way to meeting the world's future food requirements.

The supply chain also ranked highest when respondents were asked to rank the relative importance of factors when serving the food industry. An efficient supply chain achieved the highest ranking, with low materials costs ranking second and product innovation third.

Asked what areas of investment are most needed to serve the food industry, most respondents cited investment in manufacturing efficiency as the chief requirement, with investments in product innovation and R&D second and transportation and storage a close third and fourth – again indicating the importance of an efficient supply chain in the food sector.

These responses are linked to food waste reduction as well, since current distribution and storage infrastructure in emerging markets contributes to spoilage. Innovation in preservation technologies that can increase food shelf life are part of “the prize” in the food industry, Bjacek points out.

ASIAN GROWTH BECKONS

On the question of where the highest growth rates can be expected, answers pointed pre-

dominantly to China and India, in terms of demand growth, production growth, investment growth and even innovation.

There are a number of forces acting here, believes Bjacek – it is not just the sheer increase in numbers of people. “People are spending more on food and, consequently, wasting more,” he says. He points to rising affluence, the preference for convenience foods and changing diets towards greater meat consumption.

The fact that many chemical producers say they are investing in India and China to serve the food chain indicates that they believe the food chain will remain local or at least regional in nature, with most food processing taking place close to market, Bjacek argues. Even in areas which are net exporters, like North and South America, exports tend to be of raw food, with processing and packaging carried out in the country of destination, he adds.

Some 59% of respondents said their company was increasing investment in China and only a slightly smaller percentage (51%) in India. And close to half said they were increasing R&D in these countries. However, although patent filings from China are rising, says Bjacek, the quality of innovation still has some way to go, with most citations (in-

dicating a broader, practical interest in a patent area) still being to patents filed in developed economies.

Outside these two major economies, South America and Africa are viewed as having potential for high growth in food production, while mature economic areas such as North America, Europe and especially Japan are seen as having lower potential for supply and demand growth. Not surprisingly, 14% of those replying said they are reducing investment in Europe; the figure for Japan was 10%.

While many companies are making investments, the scale of capital required is moderate compared with the commodity end of the chemicals. Half of companies said they would be investing up to \$50m (€39m) in the food sector over the next five years, with 14% planning a spend of between \$50m and \$250m. Only a small proportion had plans for anything bigger, while 27% of respondents indicated they would not be making any investment.

SUPPLY CHAIN INTEGRATION

The vast majority (85%) of those taking part in the survey indicated the food sector is becoming more integrated in terms of asset ownership. As a leading trend, they thought, food processors will forward integrate into the distribution and retail sectors and backward integrate into food production at the farm level. Chemical producers, too, will drive part of the integration, moving more into food processing upstream and food handling and distribution downstream.

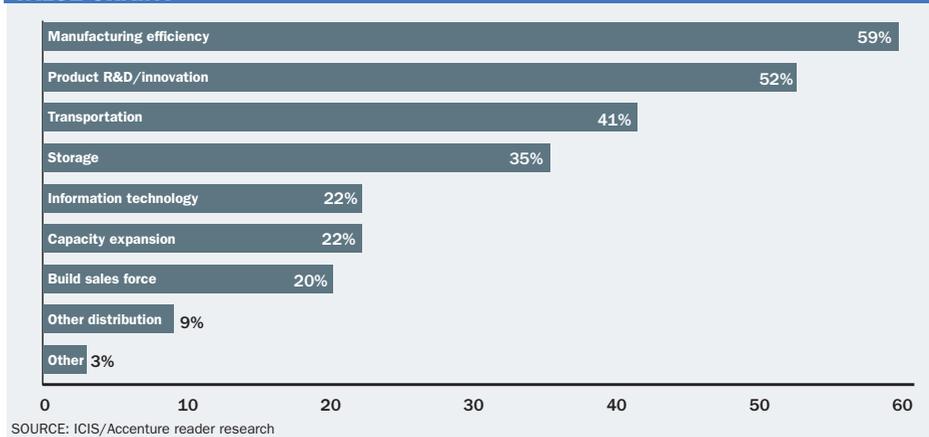
The food supply chain has a diverse set of technologies, from agricultural science to biochemistry and chemical engineering, therefore partnering with other entities for innovative solutions is necessary, especially at the local level. Chemical producers are first and foremost partnering in this respect with their customers (46%) and universities (36%), but also at a slightly lower level of response, with food industry players, government institutions and other chemical companies (all 30%). Only 18% of respondents said they were not partnering in the food chain. And 30% said their partnering activity was increasing.

CONCLUSION

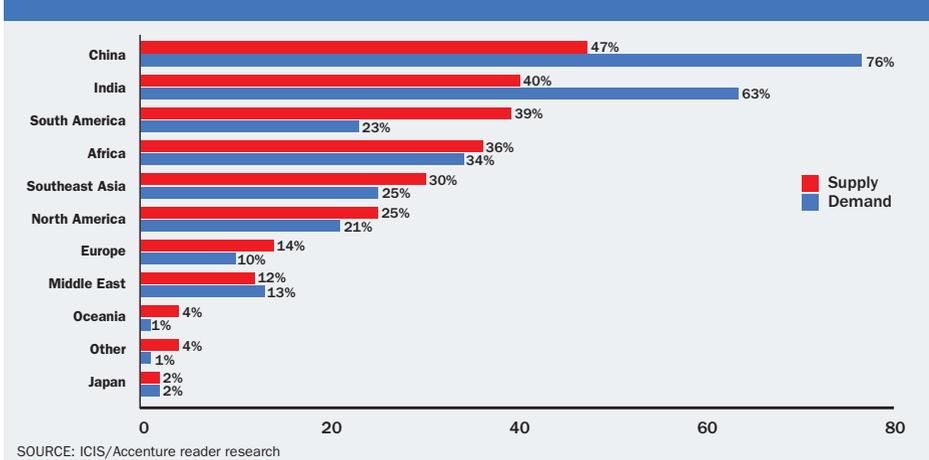
While clearly illustrating the potential of the food sector for chemical and polymer producers, says Bjacek, the underlying implications are that the chemical industry has a great part to play in increasing efficiency within the food sector. Accenture's analysis of patents indicates that up to 50% of the innovation in the food supply chain involves chemicals technology.

The chemical industry can help, first in food production and processing, by reducing energy and water usage through advances in water treatment and process technology. And second, by boosting supply chain efficiency,

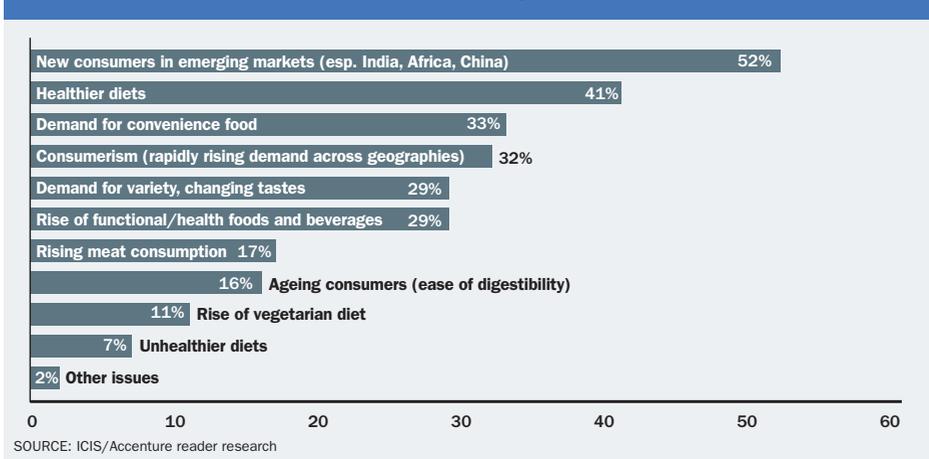
WHICH AREAS OF INVESTMENT ARE MOST NEEDED TO SERVE THE FOOD INDUSTRY VALUE CHAIN?



REGIONS WITH MOST POTENTIAL GROWTH IN SUPPLY AND DEMAND



MAIN DRIVERS OF THE FOOD INDUSTRY'S REQUIREMENTS



cutting food waste through wider use of existing and new packaging technologies.

Plastics packaging can not only cut waste of food while it is in the supply chain, but also at the point of consumption, by introducing an element of portion control for the consumer. Polymers too will benefit from the focus on water sufficiency, as they are used in piping for conventional and drip irrigation, agricultural film and farm-purpose greenhouses.

The other main conclusion to draw, says Bjacek, is that integration and consolidation along the supply chain will continue, through M&A activity, and that companies will continue to invest in what they confidently regard as a high-growth sector, especially in Asia. ■

For more details of Accenture's work, go to: www.accenture.com/us-en/blogs/cnr/default.aspx