

# Sustainability plans take hold in the mainstream

The third ICIS reader survey on sustainability, carried out in association with Genomatica, shows yet more progress towards the widespread use of renewable resources across the industry, in both commodity and specialty areas



Bio-based innovations are entering wider commercial use

**JOHN BAKER** LONDON

Chemical producers and distributors continue to strengthen their engagement with sustainability and increase their use of renewable resources. The move is being driven most notably by increasing demands from downstream users and final customers for more sustainable products.

But safer operations, potential performance advantages and strategic flexibility are also factors when considering the move to renewables-based production.

Chemical producers are responding positively and the practice of sustainability is now deeply embedded in the industry. Only 13% of companies are showing little interest and just 9% reveal they have no sustainable initiatives planned over the next five years.

The strengthening trend emerges clearly in the latest ICIS industry survey on sustainability, carried out in association with biotechnology-based process developer Genomatica. This is the third such survey on sustainability issues and follows on from research carried out with ICIS readers in mid-2009 and then again in late 2012.

Perhaps most significantly this year, 36% of respondents from chemical producers said the level of interest amongst customers in sustainably produced chemicals had increased over the past year, with 10% saying it is now much greater. And 62% stated that their customers have expressed an interest in sustainable chemicals.

These levels build on the interest already clearly evident in the 2012 survey, which in turn revealed a significant increase over the 2009 findings, when sustainability arguments were beginning to gain practical traction.

Personal care, plastics packaging and engineering plastics are the key areas where

customers are asking for renewable content, while producers say they are most interested in producing specialty chemicals and polymers using renewable feedstocks.

Close to three-quarters of survey respondents expect their companies to be offering more sustainable versions of their products within 1-2 years, with 31% already doing so amongst basic and intermediate chemical producers and 33% amongst users and pro-

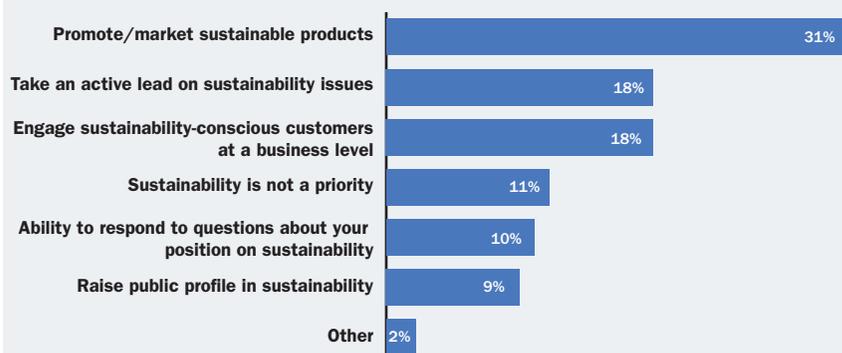
ducers of finished chemicals and distributors.

Nearly half of all companies taking part in the survey have their own sustainability strategies and policies in place already and another 40% are planning or likely to have over the next 2-3 years.

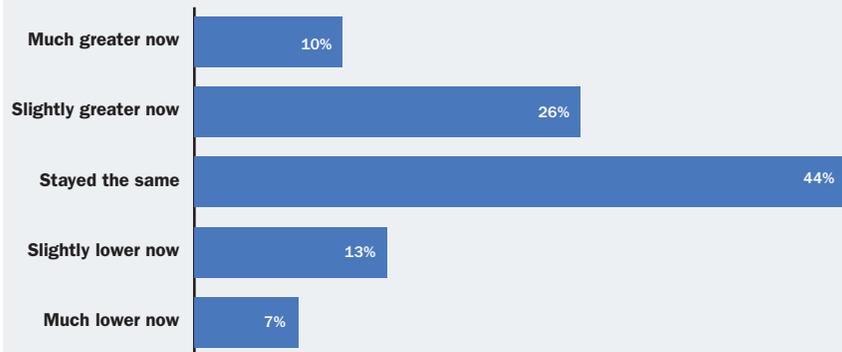
These are significant percentages, showing that sustainability concepts are taking a firm and deep hold in the mainstream of the industry.

But sustainability is not just about the shift

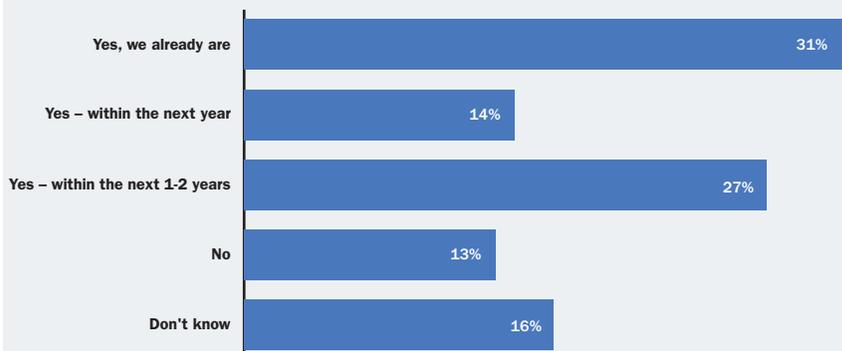
## WHAT IS YOUR TOP BUSINESS PRIORITY IN TERMS OF SUSTAINABILITY?



## IN THE LAST YEAR, HOW HAS THE LEVEL OF INTEREST FROM CUSTOMERS IN SUSTAINABLY PRODUCED CHEMICALS CHANGED?



## DO YOU EXPECT TO OFFER MORE SUSTAINABLE VERSIONS OF CHEMICALS?



### ESTABLISHED LEADERS STAY TOP

BASF, DuPont and Dow Chemical were the three most recognised renewables technology developers in 2012 and continue in that respect in the 2014 survey. Other companies cited in both surveys include Bayer, Genomatica, Shell and ExxonMobil. Genomatica is the only emerging company mentioned alongside the long-established chemical firms.

The same firms were also widely recognised as producers of renewables-based products, along with Braskem, Cargill and DSM. When asked to rank these in terms of the impression they give of sustainability, BASF and DuPont led the way, with very positive scores, followed closely by Genomatica, Dow and Bayer.

to renewable feedstocks and products. Asked about their main sustainability initiatives for the next five years, over 70% cited improving processes by reducing energy usage and waste as their top priority, with the reduction and elimination of toxic chemicals as the second highest priority (42%). This is followed very closely though by increased use of recycled materials and increased use of bio-based and renewables content.

### ENERGY AND PROCESS FOCUS

In terms of top business priorities relating to sustainability, the promotion and marketing of sustainable products easily came out on top, with taking an active lead on sustainability issues and engaging sustainability-conscious customers at a business level equal second.

## More than 40% of producers... envisage a long term economic advantage to switching to renewable feedstocks

The shift to more sustainable feedstocks naturally raises some concerns amongst chemical producers. Asked about the main issues around the used of bio-based chemicals, reliability of supply was a key concern with over 58% of replies citing this issue. Predictability of costs and consistency of raw materials were also important concerns, followed by customer qualification and acceptance of products using bio-based ingredients.

Current and potential legislation and time to market were not seen as serious issues.

### UPSTREAM VERSUS DOWNSTREAM

As in the 2012 survey, ICIS designed the 2014 survey to elicit responses from producers of basic and intermediate chemicals, and from companies that primarily use them to make finished chemical products along with their distributors. In general, the engagement and involvement in sustainability is consistent across the two groups, but the companies in the producer group appear more advanced in terms of activity, perhaps due to their larger company size, on average.

Taking the producers first, replies show that 35% are investing in research and development to support use of renewable feedstocks such as sugars, starches and biomass. Nearly a third have a strategic commitment to the use of these renewable feedstocks and a quarter report that they are already using some renewable feedstocks in commercial offerings. A fifth say they are currently partnering with other companies to assist the move into renewables.

### GENOMATICA CHRISTOPHE SCHILLING

## THE DRIVE TO GREATER SUSTAINABILITY

ANOTHER SURVEY, 30% more respondents, lots of data.

Three results jump out. First: 72% of producers now offer more sustainable versions of chemicals or plan to offer them within two years. That's a significant statement of intent and provides a market signal to users to help them in their product planning.

Second: Producers say that 80% of their customers are showing the same or higher interest in sustainable chemicals than just one year ago.

That's already a strong customer message to producers. Even more telling, is that a vanguard of 10% is showing much greater interest, with 26% more showing greater interest.

We believe that denotes a sizable faction that will aggressively move forward, and which is likely to use their purchasing power both to "nudge" producers to faster action and/or to



Schilling: industry is ready

look for the suppliers that can satisfy them.

Third: 75% of chemical users (for example, downstream firms) have either started to offer products made with more sustainable chemicals or expect to do so within two years.

That tells us that they're getting the message and taking action. They're making plans based on expected

availability of more sustainable chemicals – to make products which they plan to market as differentiated based on sustainability – to meet the growing demand for more sustainable materials from end users.

Each of these findings is significant on its own. But together, they paint a picture of entire value chains in action – like how a pot of water comes to a full boil all at once. And that bodes well for increasing traction of more sustainable chemicals. The industry is ready. ■

*Christophe Schilling is CEO of Genomatica ([www.genomatica.com](http://www.genomatica.com)) which develops biotechnology-based processes for the production of major industrial chemicals – like BDO, butadiene (BD), HMD, caprolactam (capro) and adipic acid – from alternative feedstocks.*

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### READER RESEARCH

## SURVEY ATTRACTS INCREASED RESPONSE

THIS YEAR'S ICIS/Genomatica survey took place in July and attracted 960 participants from around the world – a significant increase on the 700 who responded in 2012, which in itself indicates perhaps the greater engagement with sustainability over recent times.

The job titles of respondents to the online questionnaire were similar across the surveys, with around 17% say-

ing they were CEO/chairman/president of their business and a further 9% at board or vice president level.

Company size and type showed a shift towards smaller companies, and there was a slightly greater proportion of distributors this year. Again, this may indicate that the sustainability concept is gaining traction amongst the smaller players in the industry.

For 2014, 24% of respondents were based in Europe, 22% in North America, 17% in southeast Asia and 10% in the Middle East. Some 17% of companies had a turnover larger than \$5bn, and 62% were smaller than \$550m.

Tests of the data showed, however, that the overall results were not sensitive to the variation in company size or type. ■

More than 40% of producers, the same as in 2012, envisage a long term economic advantage to switching to renewable feedstocks, and just over a half believe their company should reduce its exposure to the petroleum-based commodity market through the use of renewables. And 80% say it is important for their company to be a front-runner in terms of sustainable chemicals.

Using a reference feedstock source is con-

sidered the most effective way of promoting the sustainability of company products, given as the chief method by over half of producers. Use of published test results and the display of third-party marks for sustainability were also cited as effective strategies for promoting the sustainability benefits of products, with life cycle analysis and listing of ingredients ranked lower.

Involvement with renewables amongst the

» downstream and distributor companies takes a slightly different form, as these companies work with suppliers to ensure sustainable products. Nearly half of all respondents said they communicate with suppliers to require information from them on their sustainability practices and 40% are working jointly with suppliers to develop approaches to improving sustainability.

Over a third are already using some renewables-based chemicals in their commercial offerings, and a quarter say they have a strategic commitment to use of renewables. Three quarters say they will have more sustainable versions of their products within the next 1-2 years, with a third saying they already have introduced such products.

Close to a fifth of participants state that they would drop suppliers that don't meet their sustainability criteria, broadly in line with the 2012 findings.

### Concerns over materials availability and pricing have become more tangible as demand grows along the entire supply chain

When it comes to important factors in considering using renewables, minimal impact on product performance or characteristics tops the poll, with the ability to differentiate products in the market place second in importance. Customer demand is of course also an important factor.

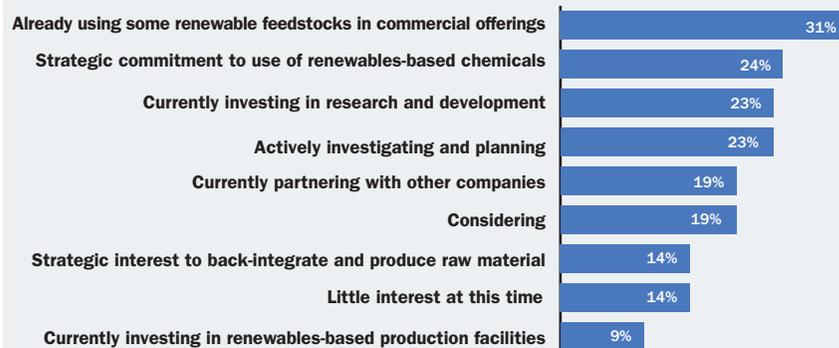
Major concerns are grouped around reliability of supply, predictability of costs and consistent quality, mirroring those amongst the basic chemical and intermediates producers. Customer acceptance and qualification also scored highly.

And in terms of promoting products' sustainability benefits, the use of published standards figured more highly in this arm of the survey, with 55% citing this as the key approach. This is a big step up from the figure of 40% in the 2012 survey, which put it in third place. Reference feedstock sources and listing of ingredients were also cited though, by around 40% of participants.

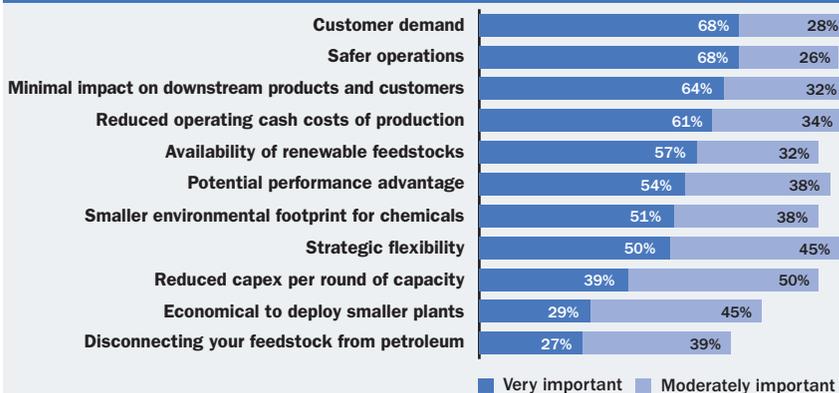
### CONCLUSIONS

The survey paints a detailed picture of the current status of sustainability and renewables in the mainstream chemical industry. But a broad picture also emerges, indicating that suppliers and customers are now well established on the sustainability journey. Producers and customers are developing their strategies as they become better informed and as renewable materials become more easily

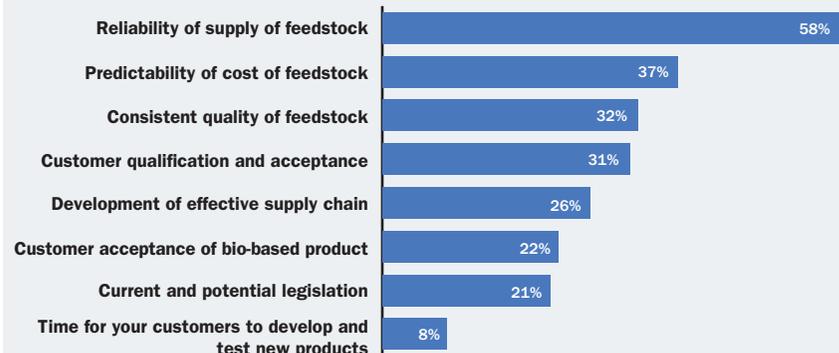
### WHAT IS YOUR STRATEGY WITH REGARD TO USE OF RENEWABLES-BASED CHEMICALS?



### IMPORTANCE OF FACTORS WHEN CONSIDERING RENEWABLE-BASED PRODUCTION



### WHAT DO YOU SEE AS THE MAIN ISSUES IN THE USE OF BIO-BASED CHEMICALS?



sourced in the marketplace.

A sign of maturation is that concerns over materials availability and pricing have become more tangible as demand grows along the entire supply chain and requires production to increase significantly. But at the present stage of development, the trend is to greater availability of bio-based materials rather than tightness in supply.

The main conclusion to draw is that sus-

tainability and renewables have become well established and widely accepted in the industry. Few if any companies will not be involved within a very short time. ■

**For more information on Genomatica and its bio-based chemical activities, go to [www.genomatica.com](http://www.genomatica.com)**

A set of slides showing the full results of this ICIS survey can be downloaded from: [www.tinyurl.com/sustainsurvey2014](http://www.tinyurl.com/sustainsurvey2014)