



SIRA TAKES ASSURANCE TO A NEW LEVEL

BPEX, BMPA
and Red Tractor
introduce Stable
Isotope Reference
Analysis to enhance
the assurance scheme
behind Red Tractor pork



Growing confidence in provenance and traceability
September 2013



IMPROVING THE INDUSTRY'S ASSURANCE SCHEMES

Following extensive research, BPEX introduces SIRA (Stable Isotope Reference Analysis) to enhance the integrity of provenance and traceability in the pig industry's assurance schemes.

SIRA is now part of the BMPA Pork Assurance scheme enabling the industry to improve traceability and provide consumers with an enhanced level of confidence in pig meat carrying the Red Tractor and indications of provenance such as the Union flag.

SIRA uses a database of four stable isotopes ratios extracted from pork samples from known locations throughout the UK.

The SIRA system works by analysing samples of pre-packed retail pork and comparing the results against the BPEX SIRA database. The probability of each sample matching the database (originating in the UK) is calculated and any low scores are followed up with a trace back audit.

After two years of rigorous testing, the system has proved to be so reliable that it has been incorporated into the quality assurance schemes operated by the British Meat Processors Association (BMPA). This means that Red Tractor pork will benefit from one of the most

comprehensive traceability checks available to consumers in the UK. It's a major breakthrough that delivers a greater degree of trust in Red Tractor pork for consumers at a time when they are more concerned than ever about the integrity of the meat they buy.

By overlaying an innovative scientific-based system such as SIRA on to the already reliable paper-based system used by BMPA, UK consumers will benefit from an enhanced traceability system.

Protocols have been established with BMPA and Red Tractor to ensure the robustness of the system while minimising any disruption to normal business.

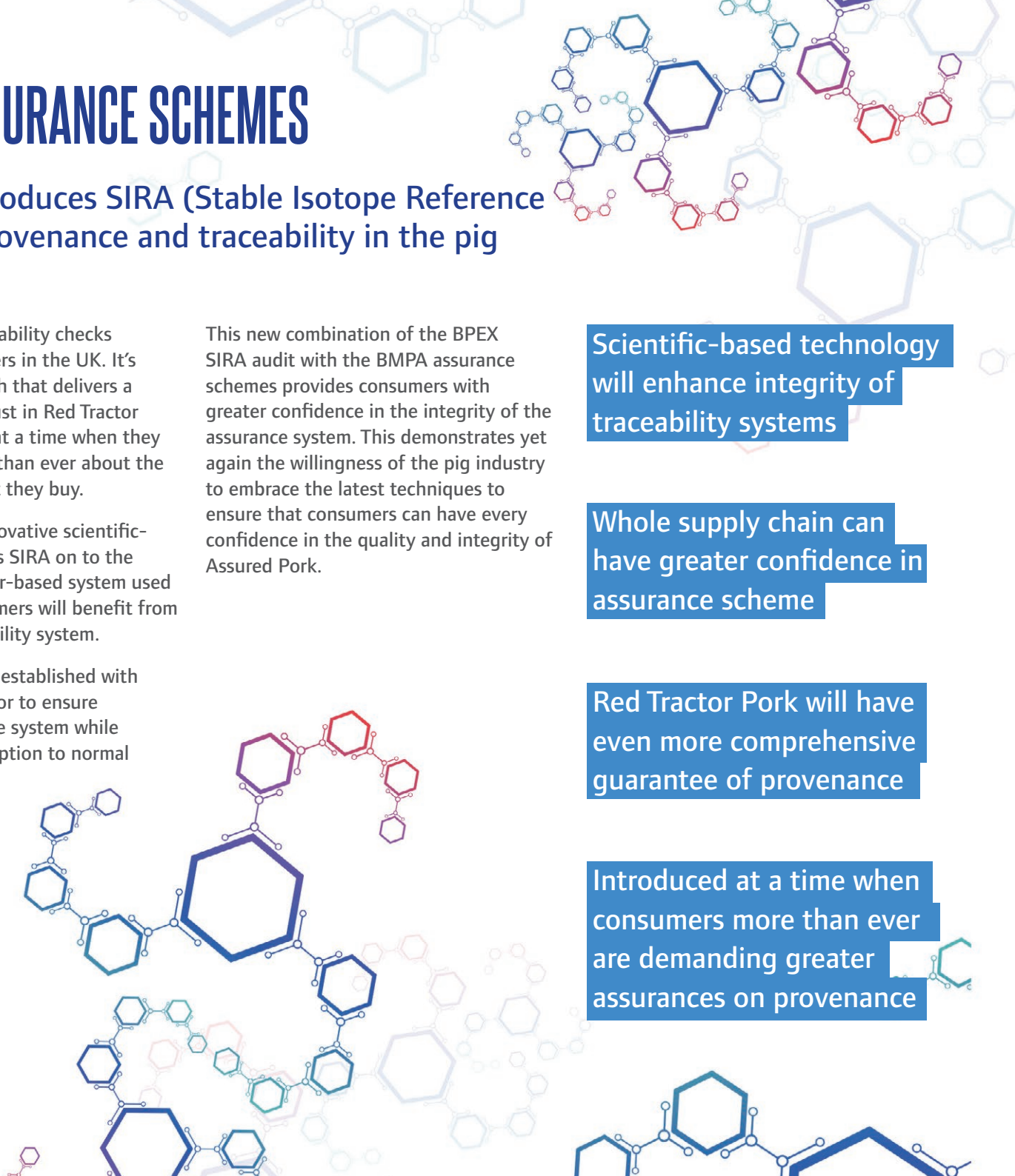
This new combination of the BPEX SIRA audit with the BMPA assurance schemes provides consumers with greater confidence in the integrity of the assurance system. This demonstrates yet again the willingness of the pig industry to embrace the latest techniques to ensure that consumers can have every confidence in the quality and integrity of Assured Pork.

Scientific-based technology will enhance integrity of traceability systems

Whole supply chain can have greater confidence in assurance scheme

Red Tractor Pork will have even more comprehensive guarantee of provenance

Introduced at a time when consumers more than ever are demanding greater assurances on provenance



HOW THE NEW SYSTEM WORKS

SIRA (Stable Isotope Reference Analysis) is a scientifically-based method that links pork to a geographical area of production. The method compares retail pork samples with a SIRA database to calculate the probability that they match. It can then be used with a traditional paper-based auditing system to trace back any low probability retail packs

BPEX undertake the analysis by purchasing retail samples of pork, subject them to SIRA and pass all results to BMPA. This is how the system works:

- 1** BPEX purchase a random sample of pork labelled as Red Tractor or of UK or British origin from supermarkets throughout the UK and subject them to SIRA. The isotopes analysed are ratios of Deuterium, Carbon, Nitrogen and Sulphur. It is intended that 30 randomly-selected products will be tested and that such tests will take place four times each year.
- 2** SIRA will generate a probability that each retail sample matches the current farm locations database for the UK.
- 3** This data will be passed to BMPA (and Red Tractor as appropriate) and any retail samples with a very low probability score (less than 10%) will be the subject of paper-based tracing audits that the scheme already uses.
- 4** A copy of the retail label with all the relevant tracing information (sell by date, packer ID, etc) will be e-mailed to the packer by BMPA (and Red Tractor as appropriate) requesting a backwards trace to the source farms (likely to be one day's batch from the source abattoir).
- 5** The source abattoir will be asked to provide BMPA with details of the source farms.
- 6** BMPA will pass the details to BPEX who will compare the possible source farms with those farms on the SIRA Database for exact or near matches (the same or adjacent postcode). If no matches or near matches are available BPEX will source pork samples from exact or near locations using pork stored in the BPEX Sample Library (the sample library aims eventually to carry a pork sample from all assured farms in Great Britain to ensure this can be done easily and speedily).
- 7** BPEX will then analyse the probability of each of the retail samples matching the small sub set of possible source farms resulting from the paper tracing exercise. The results of this stage 2 analysis will be discussed with BMPA (and Red Tractor as appropriate) who will decide on action to be taken under the Assurance Scheme rules.
- 8** The tracing information supplied will be audited during the next scheduled visit of the Certification Body to ensure minimum disruption to the business while still verifying the accuracy of the data supplied.
- 9** At least four cycles of retail sample testing will be conducted each year.



YOUR QUESTIONS ANSWERED

Q Is the science robust?

A Yes. The development of SIRA for pork was done by Agroisolab in Germany under contract to Longhand Data Ltd. They have a very successful business that conducts isotope traceability for a range of food and non-food products. Their analysis has been used in court cases in Germany. A report of the project that resulted in SIRA for pig meat in the UK is available from BPEX.

Q Does it work in practice?

A Yes. Every round of tests that we conduct includes a number of pork samples of known origin. We include these with our retail samples on an anonymous basis. The results have all been very high probabilities (c.90%) of matching the database i.e. of being British/UK.

Q Does it work for processed products?

A This is currently being researched and early results show it can be applied with only small adjustments to bacon and ham. At present, the technique will be used for pork only.

Q Is the BPEX database large enough to give robust results?

A Yes. The current database for Great Britain includes pork from 550 discrete locations with wide geographical coverage. Expert opinion confirms that the BPEX reference sample is sufficiently accurate to answer the question “What is the probability that an unknown piece of pork matches the database i.e. is from UK/GB?” It is planned to continue to expand the size of the SIRA database concentrating, in particular, on geographical outliers.

Q Does SIRA work well in Northern Ireland?

A It works but not to the same level of clarity as in Great Britain, despite the wide coverage of farms in Northern Ireland. The main reason is that there is some difficulty in distinguishing sufficiently well between pigs originating from close to the border with the Irish Republic.

Q Do isotope signatures change over time?

A The literature and expert advice is that there is little change over time as the method relies on ratios of stable isotopes. However, BPEX will be testing to see if there have been any significant changes in isotope profiles on the same farms over the past few years.

Q Who pays?

A SIRA testing of retail pork is a BPEX service paid from the BPEX levy in England. BPEX will continue to supply the data to BMPA and Red Tractor for as long as it operates the service.

Q Is another type of audit really necessary?

A The integrity of the BMPA and Red Tractor schemes rely, in great part, from having an effective traceability system. SIRA is designed to enhance the existing systems used by BMPA and not replace them.

Q How often will this be conducted?

A It is proposed to do four cycles of SIRA each year with follow-up analysis as required.

Q Are there better systems?

A While paper-based traceability systems are still effective in many cases, they can be improved through the use of SIRA. There are alternative systems such as DNA tracing in use in other species and in other countries. The use of DNA in pork and pork products relies on a comprehensive and up-to-date database of genetic material in use in the industry and while this may be effective in a relatively small industry, its use has been discounted in the UK.

Q Will the results be confidential?

A The results of SIRA and subsequent traceability checks will be dealt with in the same way that traceability checks are handled at present. Access to data will be restricted to a small number of named individuals within BPEX, BMPA and Red Tractor.

Q What is the connection between BMPA and Red Tractor?

The BMPA Pork Assurance scheme is the basis of the vast majority of Red Tractor pork on sale in Great Britain. The BMPA Pork Assurance standards cover animal welfare, food safety and product quality as well as provenance and traceability. Red Tractor also have equivalent assurance standards for companies not wishing to be part of the BMPA Scheme.

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