CBI
Ministry of Foreign Affairs

CBI Product Factsheet: Agricultural Radiators and parts in Eastern Europe

'Practical market insights for your product'

Poland and the Czech Republic are the biggest markets for radiators and associated parts in Eastern Europe, with Poland experiencing the most dynamic growth. Hungary is the third largest market and is the most receptive to sourcing parts from developing countries. The greatest opportunities in this market lie in aluminium radiators, while the copper/brass segment is declining. The best way of accessing the market would be through OEM/OES subcontracting or selling through pan-European or national wholesaler/importer networks.

Product definition

Radiators are grouped under "Radiators and parts thereof" (HS codes 87089110, 87089120, 87089135, 87089190, 87089191 and 87089199). This Product Factsheet analyses the market for radiators and their parts as used in the agricultural machinery for the Eastern European market (i.e. Poland, the Czech Republic, Hungary, Bulgaria, Romania, Slovakia and Slovenia).

Product specifications

Quality: Compliance with international standards and European standards on safety is required, as well as conformity to existing EU and national legislation and practices. The ISO/TS 16949 standard is considered to be the highest level of quality. This standard is important for the European automotive industry as it outlines the best practices when designing, developing, manufacturing, installing or servicing automotive products.

The quality, reliability and expected durability of radiators used in agricultural machinery in Europe is very high because the machines are used daily for extended periods of time and do not always have extensive maintenance schedules. The quality of materials used in the production of spare parts needs to be high to ensure their durability and safety and the supplied parts have to be carefully manufactured and inspected, as defective parts may be returned.

Materials: Radiators are typically made of stacked layers of metal sheet, pressed to form channels and soldered or brazed. Modern OE manufacturers use aluminium in the production of radiators, although there is still a large aftermarket demand for brass/copper applications.

Considerations for action

- For more information on requirements for exporting casting and forgings to the EU, please refer to the CBI Buyer Requirements database for more information on Labels and Standards: Sustainability in Casting and Forging

Packaging & Labelling*:* Radiators are typically packaged in cardboard and/or wooden boxes with foam to protect them from being damaged. The industry practice is to label the packages with a description of the contents, including the technical parameters of the radiators, such as core size, model application, material, certifications, and serial number (e.g. XPROD139635 – where XPROD is the prefix which gives the model (XP), the assembly plant (R), and the production year/month (OD), followed by the serial number 139635). These numbers should match the serial prefix and serial number on the ID tag which is either on the radiator support panel or the inner guard, depending on the model.

In general, packaging is dependent on the buyer, either OEM or end-user consumer (aftermarket). For aftermarket applications, the packaging is typically one-way packaging, in which the packaging is discarded after a single use. Returnable packaging is the most often used by OEM suppliers, in order to reduce cost and improve efficiency of the packaging operations. Returnable packaging is not thrown away after use. The empty packaging is circulated by the OEM or a designated packaging operator. If you want to export to the EU, you must ensure that the packaging you use for your products meets all EU requirements. To reduce the harmful impact of packaging on the environment, the EU has specified legislation concerning the management of packaging and packaging waste.

Considerations for action

- For more information on requirements for packaging and packaging waste, please refer to the European Commission.

Design*:* In Europe, agricultural machinery radiators can be divided into radiators for gas engines, for diesel engines, or those compatible with both types of engines. Typically, radiators are specific to the type, make and size of the engine they are destined for and therefore they will have different dimensions and designs. The dimensions of radiators are typically dictated by the engine capacity (with higher capacity engines calling for bigger and more efficient radiators).

Figure 1: Agricultural radiators and radiator parts

Source: Fotolia/Internet

Buyer Requirements

Legislative Requirements: The most important requirement for automotive components is that they comply with the technical standards set by EU legislation in order to guarantee vehicle and environmental safety.

Type-approval is a certification for various types of motor vehicles and their components, which includes agricultural and forestry tractors. The type-approval or certification is valid in all EU Member States and is required when selling any products in the EU. Many automotive components are not approved until the final assembly, in which case certification of individual components is not necessary, although these components will still have to comply with type-approval requirements.

The End of Life Vehicles (ELV) Directive aims to avoid environmental pollution during the scrapping process through reducing the hazardous materials used in vehicle production. Vehicles must be designed to facilitate proper dismantling and recycling (by coding the components) and the use of heavy metals such as lead, mercury, cadmium and hexavalent chromium is prohibited (with the exception of a few applications).

Considerations for action

- Check with your buyer, or with the approval authority of the country you want to export to, what the specific standards are for the parts you are manufacturing.
- Read more about type approval at the EU Export Helpdesk.

- Check if your buyer uses the International Material Data System (IMDS). This is a collective, computer-based data system developed by automotive OEMs to manage environmentally relevant aspects of the different parts used in vehicles. It has been adopted as the global standard for reporting on material content in the automotive industry.

Common buyer requirements: In addition to legislative approval, there are other common buyer requirements. While these are not obligatory in the legal sense, they are implemented by various competitors in the market and are thus necessary in order to compete effectively.

Quality Management: In order to apply for type-approval, production processes need to meet quality management criteria. ISO TS/16949 and

Considerations for action

- Implement ISO 9001 and ISO TS/16949, as it is a standard requirement of EU buyers. Click here for more information on ISO

ISO 9001 are accepted as standard requirements and EU buyers and manufacturers often insist on them.

Corporate social responsibility (CSR) and the extent to which buyers expect a certain level of social and environmental performance is becoming increasingly important. Bigger EU companies have developed their own CSR policies and require their suppliers (and their sub-suppliers) to conform to these. Signing a supplier code of conduct is often a prerequisite. These codes of conduct generally cover compliance with local laws, protection regarding workers' health and safety, respecting basic labour rights and also business ethics. The implementation of an environmental management system is often a requirement for core suppliers.

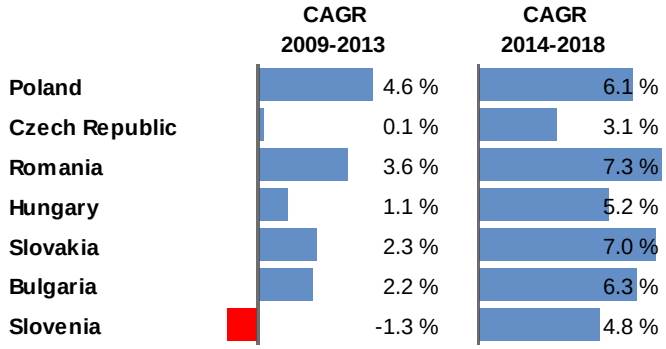
TS/16949 at the ISO website

- Most big car brands publish their CSR policies and supplier code of conduct on their websites. An internet search for these may give valuable insight into assessing your company's performance by comparison.
- Implement an environmental management system, such as ISO 14001, as it is a common requirement.

Macro-economic statistics

In 2013, Eastern Europe saw an average growth of 5.5% after the previous year's 6.8% contraction. Forecasts for 2014 and 2015 growth are estimated at 4.1% and 5.7%, respectively. Poland, one of Eastern Europe's largest markets, as well as Romania and Slovakia are all forecasted to have strong average growth of more than 6% through 2018.

Figure 2: GDP (current prices) Compound Annual Growth Rate (CAGR) for 2009-2013 and estimate for 2014-2018 for selected Eastern European Countries

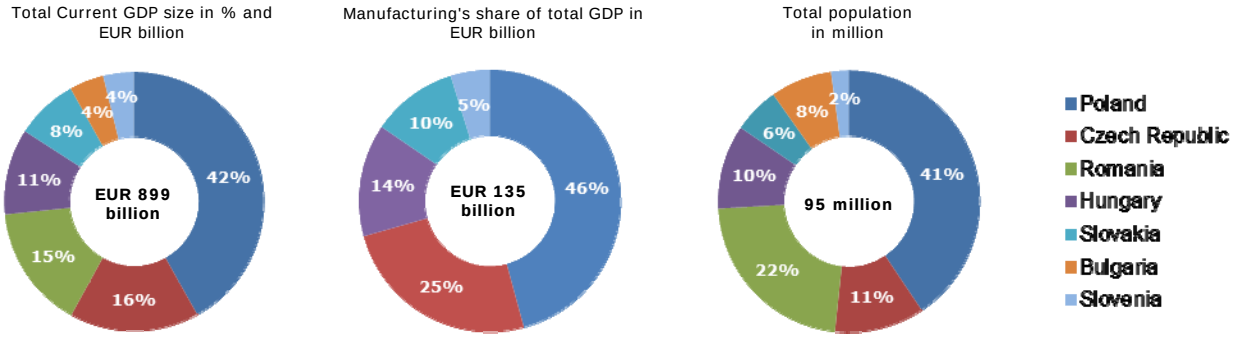


Data source: IMF 2014, World Economic Outlook Database

The value of GDP for the seven Eastern European countries covered by this document was estimated at €899 (or roughly one-tenth of the GDP value for the EU5 countries i.e. the biggest Western European economies: Germany, France, the UK, Italy and Spain) in 2013. Poland is the largest market in Eastern Europe, with a GDP of approximately €377 billion and value of manufacturing at €62 billion, accounting respectively for more than 40% share of total GDP and manufacturing values for the seven Eastern European countries in question. The Czech Republic is the second largest Eastern European economy with a strong manufacturing base, followed by Romania and Hungary. Bulgaria and Slovenia are relatively small economies, together accounting for less than 10% of the total Eastern European GDP.

In 2013 the EU agricultural machinery market was estimated to be worth €24.8 billion – equivalent to 30% of global sales. The EU is also the biggest manufacturer of agricultural machinery, with sales of more than €26 billion in 2011.

Figure 3: Key 2013 macroeconomic indicators for Eastern Europe, in € billions (population in millions)

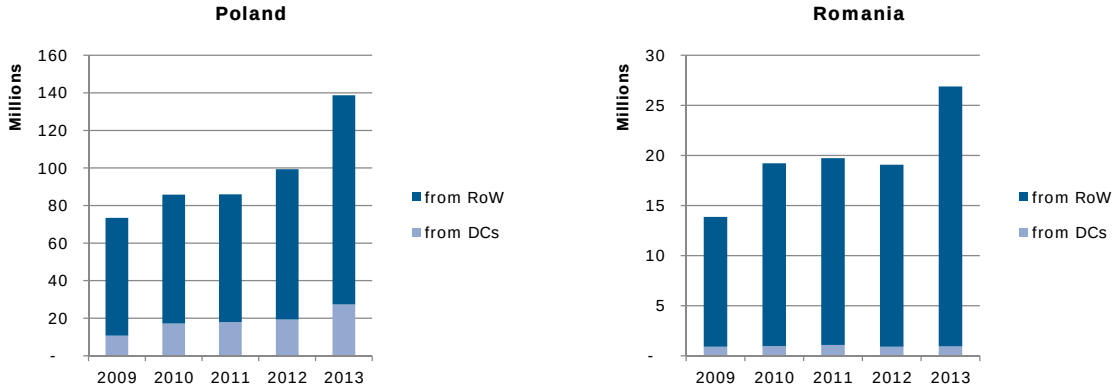


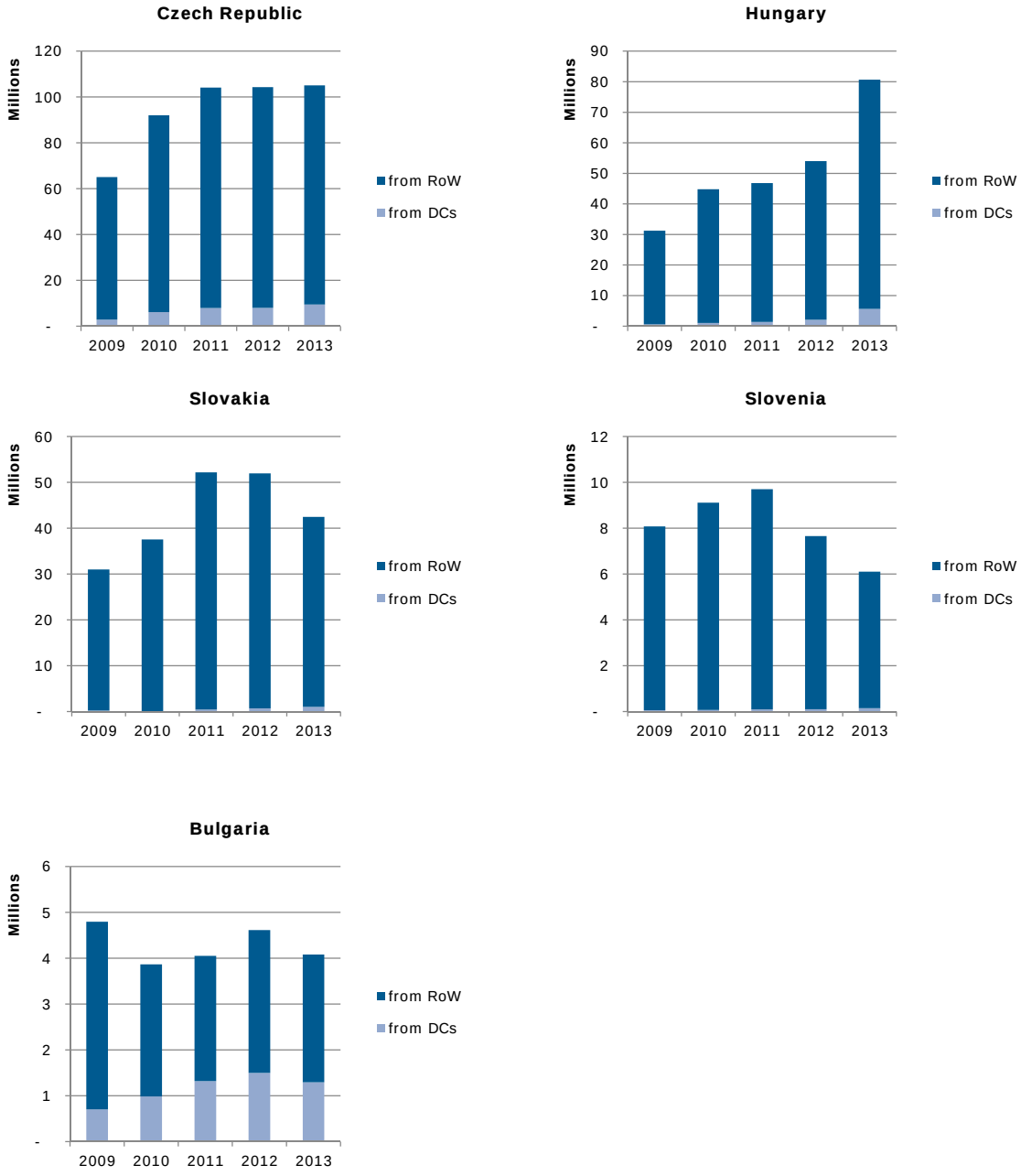
**No data available for Bulgaria and Romania*
Data source: IMF and OECD 2014

Trade Statistics

Imports and exports:
In 2013, Eastern Europe imported approximately €404 million worth of automotive radiators. Combined, Poland, Hungary and the Czech Republic represent over 80% of the total imports of radiators into Eastern Europe. The imported radiators are mainly shipped from Eastern and Western Europe as well as other developed countries such as Korea, the United States and Canada. The value of radiator imports from DCs to Eastern Europe was estimated at €46 million (over 11% of total radiator imports) in 2013 and has grown at a 30% CAGR between 2009 and 2013. Poland imports by far the most from the DC in terms of value (€27.3 million), followed by the Czech Republic (€9.4 million) and Hungary (€5.6 million). The biggest DC exporters of radiators to Eastern Europe are China and Thailand, together accounting for roughly €34 million or close to 74% of all radiator imports from DCs. The radiator imports from China have more than tripled between 2009 and 2013. The future outlook is that imports from the DCs will continue to grow, based on the fact that Eastern European countries are becoming the automotive parts hub for Western European manufacturers, and their imports from DC radiator importers are growing at twice the rate of total imports.

Figure 4: Imports of radiators and parts by country, in € million (the range of the y-axes varies by country due to different import levels)



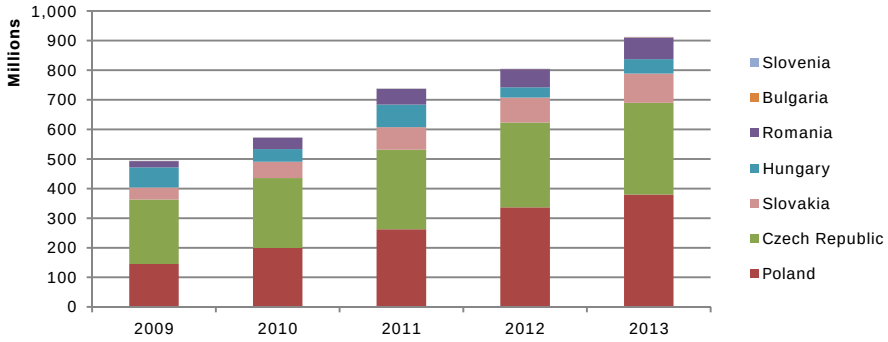


RoW: Rest of the world
Data source: Eurostat 2014

Eastern Europe is a net exporter of automotive radiators with exports in 2013 at €913 million and an impressive export CAGR of 17% between 2009 and 2013. Poland is the largest exporter with €380 million, followed by the Czech Republic with €310 million. Together these two countries account for more than 75% of Eastern Europe's radiator exports. The radiators are mainly exported within the EU countries, with close to 90% of exports sold there as well as to other developed countries such as the United States and Russia.

Eastern Europe exports approximately €69 million worth of radiators to the Developing Countries (DC). The biggest DC importers of radiators from Eastern Europe include China (€24 million), Turkey (€17 million) and Morocco (€5.6 million).

Figure 5: Exports of radiators and parts, in € million



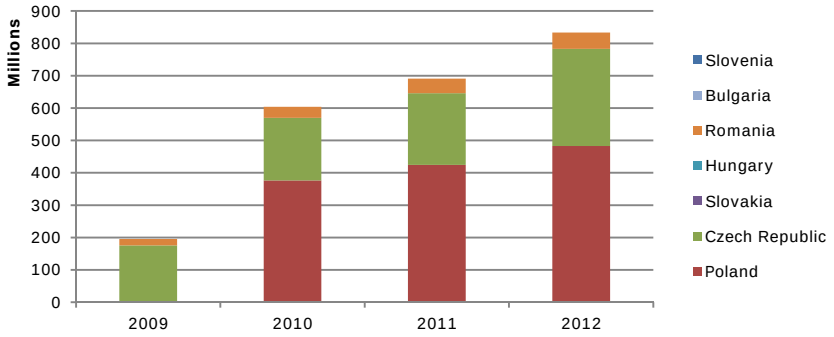
Data source: Eurostat 2014

Production and consumption:

The production and consumption data for radiators is largely incomplete for Eastern Europe. There are no numbers for radiator production for Slovakia, Hungary, Bulgaria and Slovenia.

Based on the available data, Poland is the biggest producer of radiators and their parts with apparent production of €483 million in 2012. The reported production value for Poland has increased by nearly 30% from 2010 when it was at a level of €376 million. The Czech Republic follows with reported 2012 production at €300 million, up 70% from €176 million in 2009. Production levels for radiators will likely continue to grow in Eastern Europe in the future as many automotive OEMs are shifting production to these countries.

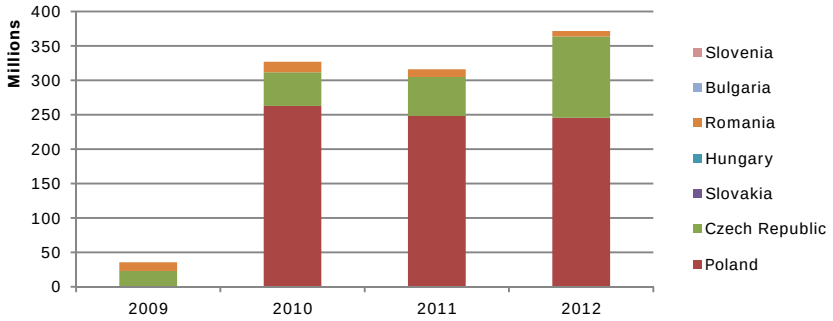
Figure 6: Apparent production of radiators and their parts in the EE countries, in € million



Data source: Eurostat (Prodcom) 2014

The unavailability of production data for Slovakia, Hungary, Slovenia and Bulgaria has made it impossible to calculate the apparent consumption for these countries. The apparent level of consumption of radiators and their parts in Eastern European with available data has been grown between 2009 and 2012. Poland is the biggest reported consumer of radiators with apparent consumption in 2012 at the €246 million level, followed by the Czech Republic with 2012 consumption at €118 million level.

Figure 7: Apparent consumption* of radiators and their parts in the EE countries, in € million



*Apparent Consumption = Production + Imports – Exports
Data source: Eurostat (Prodcom) 2014

For more information on automotive trade statistics, please refer to CBI Market Trade Statistics

Market trends and opportunities

The biggest opportunities lie in the contracting out of radiator parts production as well as manufacturing parts for the aftermarket sector, as a large share of Eastern European machinery is aged and used much longer than it would be in Western Europe. The greatest opportunities for the OEM sector lie in aluminium radiators, as this is the modern standard to which the industry is increasingly turning. There is still some demand for copper/brass radiators but it is a declining trend. In order to be successful in the market, it is important to include accessories like radiator caps, hoses and thermostats. The easiest way to market these components would be to approach the local agricultural parts wholesalers or the OEMs and/or component/systems suppliers with a subcontracting offer. A limited number of radiators could also be sold through industrial online shops. In the aftermarket sector there is still demand for copper and brass parts.

Poland and the Czech Republic are the largest import markets for radiators, with estimated imports of €139 million and €105 million respectively in 2013. Together they represent 60% of the Eastern European radiator import market. Both these markets have been experiencing solid growth since 2009, with Poland growing on average by 17% annually and the Czech Republic by 13%. In Poland the rise in radiator imports seems to have accelerated, while in the Czech Republic it appears to have stabilized. It is interesting that in both countries the imports from the DCs grew at a much higher rate than total imports, which means both countries are willing to source from developing countries. Currently, Poland imports roughly one-fifth and the Czech Republic one-tenth of their radiators and radiator parts from the DCs (close to €37 million in total).

Hungary is the third largest market with estimated radiator imports in 2013 worth €81 million and an average annual compound growth of 27% between 2009 and 2013. Of all Eastern European countries, Hungary seems the most receptive to importing radiators and parts from developing countries. Although the share of DC imports currently stands at 7%, it has increased nine-fold since 2009.

For more information on automotive market trends, please refer to CBI Market Trends

Price

Apart from the distribution of new parts, the aftermarket for agricultural parts also encompasses a lively distribution of used or overhauled parts and components. Pricing depends on the supply chain positioning. The aftermarket, in particular, is very discount-driven and has varied mark-ups at each distribution step, and for different parts and components. Due to large variation in types and models of parts, it is difficult to provide a general overview of agricultural radiator prices, but it is possible to provide some insight into margins imposed by different players in the supply chain. Based on the margin ranges, DC suppliers selling to the tier 3 supplier in the OEM supply chain could price their products at between 64% and 81% of the OEM delivery price. In order to better ascertain prices of specific products and models, you can search the internet to determine the appropriate range, or talk directly to wholesalers and/or retailers. The differences in price of branded spare parts will not be great among the various countries. Those players who are present in several European countries have largely harmonised their prices; any differences in pricing may occur because of different logistics and local costs.

OEM supply chain	**Margin**
Tier 1 supplier delivering to OEM	6-8%
Tier 2 supplier delivering to tier 1	6-15%
Tier 3 supplier delivering to tier 2	10-25%
Aftermarket OES supply chain	**Margin**
Tier 1 delivering to OEM for OES sales through approved service chain	10-30%
Tier 1 delivering to OEM for OES sales through independent outlets	10-25%
OEM delivering OES parts through its approved service chain	25-65%
OEM delivering OES parts through independent outlets	30-40%

Main sources

- European Commission's macroeconomic publications
- IMF – good source for macroeconomic information
- OECD – good source for macroeconomic and industry-specific information
- European Commission's Directives and Regulations pertaining to wheeled agricultural or forestry tractors
- CEMA – Agricultural Machinery in Europe
- Trade fairs are a good place to network, to meet buyers and to promote your company. The most prominent agricultural machinery trade fairs in Eastern Europe are: the Polish Agricultural Trade Fair: Polagra-Premiery and the Czech Agricultural Trade Fair: TECHAGRO, Slovakian Agrosalon Nitra

This survey was compiled for CBI by Global Intelligence Alliance