International Food & Agricultural Trade Policy Council

IPC Policy Focus

December 2011

Keeping an Eye on the Ball: The Need to Prioritize US and EU Research and Development Funding for Agriculture

This policy brief complements the September 2011 IPC Discussion Paper "Farm Policy in the US and the EU: The Status of Reform and the Choices Ahead" by David Blandford, Tim Josling, and Jean-Christophe Bureau. Funding for this paper and a set of Policy Focus briefs was provided from both sides of the Atlantic: IPC is grateful for support from the RISE Foundation (www.risefoundation.eu), and for additional support from the Farm Foundation (www.farmfoundation.org) under its Small Grants Program. All publications can be found at www.agritrade.org/Publications/FarmPolicyintheUSandEU.html.

The combination of population and income growth will generate a significant increase in the global demand for food. It is estimated that in order to maintain the current average global availability of food per person by 2050, an additional billion tons of cereals and 200 million tons of meat will need to be produced annually (Bruinsma, 2009).The demand for agricultural raw materials will also continue to expand as land-based industries are increasingly used as sources of energy and biomaterials.

The United Nations projects that by 2050 the world's population will be over 9 billion, compared to 7 billion currently, an increase of roughly one-third. Forecasts of population growth have repeatedly raised Malthusian concerns—that the growth in population will outpace growth in the food supply. Such concerns have proven unfounded, largely because of increases in productivity made possible by a continuous supply of new technologies and improvement in the knowledge of those engaged in agriculture and the food system (Alston et al., 2010). Since the end of the Second World War, technical change has enabled agriculture to provide an ample supply of food and raw materials at reasonable prices, such that the share of the average consumer's disposable income spent on food in the EU and the US has declined substantially.

The decline in real (inflation adjusted) agricultural prices has long been used as evidence that Malthusian concerns are misplaced. An apparent reversal of the downward price trend since 2007 is not definitive evidence of Malthus' revenge. Still, **to a large extent we have come to view agriculture's ability to supply food at reasonable prices as the norm, whereas it is actually predicated on continued investment in agricultural research and extension.** There are worrying signs of a slackening in the rate of productivity growth in European agriculture (Butault and Requillart, 2010). The stagnation of wheat yields in Europe, and to a lesser extent in the US is also worrying (Brisson et al., 2010; Chavas, 2011;).[1]

Since the end of the Second World War, technical change has enabled agriculture to provide an ample supply of food and raw materials at reasonable prices....[However,] There are worrying signs of a slackening in the rate of productivity growth in European agriculture. The stagnation of wheat yields in Europe, and to a lesser extent in the US is also worrying.

As technical change in agriculture seems to be slowing down, environmental pressures in the sector are increasing. Soil erosion, water depletion and the decline in the population of pollinating insects threaten long term production potential —a situation made more acute by the likely negative effect of climate change on global yields (Fedoroff et al., 2010; Lobell et al., 2011). In addition to concerns over agriculture, the decline in fish catches, in spite of increasingly sophisticated fishing equipment, has challenged the idea of an ever growing supply of protein from the sea.

There is a growing consensus that a solution lies in "sustainable intensification" or a "double green revolution" (Godfray et al., 2010). But achieving this requires a high rate of innova-

1 Analysis by Alston et al. 2009 and Ball 2010 tend to support a slowdown in total factor productivity growth, but Fuglie's (2009) analysis does not. Total factor productivity is notoriously difficult to measure in agriculture, given the lack of reliable data for measuring inputs such as land, plantations, buildings and self-employed labor. Focusing on partial productivity measures, such as yield per unit of land, is perhaps less satisfactory from a conceptual standpoint but is more straightforward.

tion to meet the dual challenges of higher productivity and sustainability. Greater production has to be obtained from more environmentally friendly techniques, while at the same time deforestation and land degradation need to be halted. **Producing more food with fewer inputs and without using additional land requires technical change that reduces negative externalities while at the same time ensuring greater supply. Meeting the challenge of sustainable food production will not be achievable without considerable investment in agricultural research and development (R&D).**

Given the critical importance of these issues, it is puzzling that both US and EU agricultural policies devote so much money to supporting current farm incomes and so little to investing in the future of the sector. Neither recent reforms, nor proposals for future policies seem to have taken the measure of what is at stake.[2]

Numerous studies show that the returns to society from agricultural research are large, with rates of return per dollar invested in double digit figures.

The case for agricultural R&D

Numerous studies show that the returns to society from agricultural research are large, with rates of return per dollar invested in double digit figures (Alston et al. 2010; Fuglie and Heisey, 2007). Yet, public research funding has been declining in many OECD countries after adjusting for inflation. When one takes into account the fact that there has been a significant shift in public R&D budgets towards public interest areas such as the environment and food safety, expenditure that targets productivity enhancement has been reduced even more (Alston et al 1999; Pardey 2006). Public agricultural R&D in emerging countries has been increasing at a fast rate. The growth in Chinese figures is particularly impressive, from $ 1.4 billion in 1993 to $ 3.6 billion in 2007 (ASTI figures, constant 2005 dollars). However, other estimates suggest that the growth of emerging countries R&D as a whole is more limited than previously estimated (Beintema and Stads 2008) and that expenditure in Sub-Saharan Africa has been falling (Science Council, CGIAR 2005).

2 This paper does *not* examine US and EU funding for international agricultural research initiatives, such as those through the Consultative Group on International Agricultural Research (CGIAR), a hugely important topic that cannot be properly addressed in this policy brief.

Private investment in agricultural R&D has been increasing in OECD countries. For example, it now accounts for more than half of all R&D funding in the United States. The private share of total research dollars rose from roughly 47 percent at the beginning of the 1970s to roughly 58 percent at the end of the 1990s (the period for which data are available[3]). It is striking that the R&D budget of Monsanto, a major agribusiness company, at roughly $1 billion is equivalent to roughly 9-10 percent of the company's sales of seeds and crop protection products. In contrast, **public expenditure on agricultural R&D is equivalent to less than 2 percent of the value sales of agricultural products in the United States.**

The private sector will continue to play a key role in the adaptation and application of new technologies in agriculture, providing that intellectual property rights are maintained to ensure a return to private investment. But it would be foolhardy to argue that increased private investment obviates the need for public sector investment. Private sector efforts focus on applied research or the development of new technologies with a particular emphasis on seed, fertilizer and agro-chemicals.[4] **Most basic research, such as that directed towards the study of the genomes of organisms, which is often risky from an economic perspective and rarely offers a rapid return, is less likely to be funded privately at a level that will match future challenges.**

It is important not only to place greater priority on public R&D funding, but also on the targeting of limited R&D budgets to addressing major challenges, such as adaptation to climate change, in order to garner maximum benefit for society. It will also be important to strengthen the linkages between public and private sector R&D activity. History shows that public investment in basic agricultural research plays a pivotal role in underpinning the generation of new technologies for the sector. A classic example was the development of hybrid corn—probably one of the most significant advances in U.S. agriculture in the twentieth century—which was pioneered by public sector research and subsequently

3 See ERS (USDA) Agricultural Research Funding in the Public and Private Sectors at www.ers.usda.gov/Data/AgResearchFunding/

4 It is important to point out that in the EU private R&D in biology for agriculture has been discouraged by resistance to biotechnology. In some EU countries, both private firms and public universities have withdrawn almost completely from genetic research relating to agriculture under pressure by activists against experiments on crops.

It is important not only to place greater priority on public R&D funding, but also on the targeting of limited R&D budgets to addressing major challenges, such as adaptation to climate change, in order to garner maximum benefit for society. It will also be important to strengthen the linkages between public and private sector R&D activity.

developed by the private sector.[5] The public role is likely to be even more relevant for innovation focusing on sustainability through input saving and environmentally-friendly production techniques. This is in contrast to the "green revolution" technology that required a greater use of mineral inputs, that may not continue to be readily available in the future, such as phosphates and some oligo-elements such as zinc (Keyzer, 2010).

The example of hybrid corn and recent developments in genomics such as DNA sequencing illustrate the synergy that often exists between public and private sector research efforts. Advances in knowledge generated in the public sector can be further refined by scientists in the private sector, generating additional returns to society through the development of new products and commercial applications. Evidence suggests that the returns to society as a whole from private sector R&D are comparable to those from public sector R&D (Fuglie and Heisey, 2007). **Society as a whole benefits from the combined and inter-related efforts of the public and private sectors to develop new technologies for agriculture.**

US Agricultural R&D Policies

Estimates show very high returns on agricultural research in the United States. One recent summary of studies suggest a median rate of return of 45 percent for every dollar that invested by both the public and private sectors (Fuglie and Heisey, 2007). Yet, public funds devoted to agricultural research are strikingly small compared to spending on farm income support, and public research funding is declining.

Farm bill legislation contains funding provisions for agricultural R&D, but expenditure on agriculture is a relatively small part of total research spending at the Federal level. **The US Department of Agriculture (USDA) accounted for roughly 2 percent of the total estimated US budget for R&D in FY 2010, compared to 63 percent for the Department of Defense** (CRS, 2010). Other US agencies also provide funds for public research on issues relating to agriculture (broadly defined), for example, diet and health. Roughly 70 percent of all public agricultural R&D expenditures derive from state-level institutions with the balance in USDA research agencies.[6] After adjusting for inflation, total public R&D funding for agriculture was roughly the same in 2008 as at the beginning of the millennium.

The Obama administration has placed considerable stress on the importance of investing in R&D for the future economic and social well-being of the United States. Particular emphasis is being placed on the physical sciences and engineering. However, **in 2008, the latest year for which data are available, total public expenditure on agricultural R&D (broadly defined) was estimated to be $5.2 billion. This can be compared to support to agricultural producers, estimated at $23.7 billion during the same year** (as measured by the OECD Producer Support Estimate).

The protection of resources for R&D is likely to be assigned a lower priority than funding for commodity support, since the latter has a more immediate impact on a farmer's bottom line... Investments in agricultural R&D often take 20 years or more to pay off, so reductions in research efforts now will have negative consequences for US agriculture and the entire US population in the future.

Moreover, funding for agricultural R&D has recently come under considerable pressure. The FY 2011 Federal budget eliminated earmarked funding for agricultural research projects and recalled $230 million budgeted for research buildings that had not been spent. Funding for the major competitive grants program, the Agriculture and Food Research Initiative (AFRI), was held constant at the FY2010 level of $265 million. Recent proposals in the House of Representatives for FY 2012 would reduce this by 15 percent to $225 million, which is $100 million below the Obama administration's requested funding level. Most states are facing large budget

5 See "Improving Corn" at www.ars.usda.gov/is/timeline/corn.htm

6 Federal funding accounts for roughly 40 percent of the state total, with roughly half of that from USDA and the rest from other Federal sources. The balance comes from state budget appropriations and industry sources. Source: Economic Research Service (USDA) website, Agricultural Research and Productivity (accessed July 27, 2011).

deficits and there are growing pressures to reduce the funding for agricultural research and extension. Recently, for example, Pennsylvania reduced its state appropriation for agricultural R&D and extension by 19% and there have been significant cuts in a number of other states, such as California, Oregon and South Dakota.

It is difficult to believe that whatever provisions for funding agricultural R&D are included in the 2012 farm bill, they will make up for recent and likely future reductions in funding at the state level. Indeed, unless there is a change in attitudes, federal funding for R&D seems likely to be reduced. **Although farm groups are well aware of the potential contribution that R&D can make to competitiveness and to future profitability, the protection of resources for R&D is likely to be assigned a lower priority than funding for commodity support, since the latter has a more immediate impact on a farmer's bottom line.**

Alston (2010) shows that investments in agricultural R&D often take 20 years or more to pay off, so reductions in research efforts now will have negative consequences for US agriculture and the entire US population in the future. Given the important contribution that the US makes to global food supplies, there will also be negative implications for the world food situation. Continued uncertainty over funding makes it extremely difficult to maintain the sustained effort that much agricultural research requires to yield results. Heisey et al. (2011) estimate that holding public R&D constant in dollar terms until 2050 will translate into a halving of the recent annual rate of productivity growth in US agriculture. At the moment, the maintenance of constant nominal funding for the foreseeable future seems overly optimistic, so the outlook for future productivity growth may be even bleaker.

EU Agricultural R&D Policies

The EU identified R&D as a leading priority in its 2000 Lisbon strategy, but by 2008, R&D amounted to only 1.9 percent of GDP in the EU-27 (including 0.7% for public R&D), much below the 3 percent target set in Lisbon. The "Common Strategic Framework" for research agreed by the European Council in February 2011, a part of the "Europe 2020 Strategy", contains an "Innovation Union" as its flagship component.[7]

> The EU identified R&D as a leading priority in its 2000 Lisbon strategy, but by 2008, R&D amounted to only 1.9 percent of GDP in the EU-27, much below the 3 percent target set in Lisbon.... [Yet,] It is important to acknowledge that funding for research at the EU level has been increasing.

In spite of a series of missed targets, it is important to acknowledge that funding for research at the EU level has been increasing. The budget for the 7th Framework Program for R&D (FP7) was €53 billion for 2007-2013, up 63 percent (in nominal terms) from the previous period. The Commission's June 2011 budgetary proposals for the next framework 2014-2020 ("Horizon 2020")include €80 billion for R&D (all sectors).[8]

The 1957 Rome Treaty emphasized the need to increase EU agricultural productivity. However, that objective has never been reflected in budgetary priorities. The early CAP provided limited funds for structural policies, i.e. the idea of modernizing structures so as to reach "viable large scale farms", as promoted by the late Commissioner Mansholt. Instead it provided for lavish market management expenditures (price and income support) in the 1970s and 1980s.[9] The shift towards a rural development policy in the early 2000s did not translate into significant additional resources for agricultural research. The Treaty on the Functioning of the European Union reiterates the 1957 objective of boosting farm productivity, but this is not reflected in the CAP budget. FP7 funding accounts for most of the agricultural R&D expenditure. Funding for Food Agriculture and Technology under the "Cooperation" item accounts for less than €300 million, out of the total R&D budget of roughly €8 billion per year.[10] If one includes other

7 The agricultural component of this strategy identifies four "challenges": the encouragement of sustainable primary food production that mitigates and adapts to climate change; the development of low-carbon technology through biotechnology; the provision of food security within and outside Europe; and the provision of public goods in rural areas.

8 A budget for Europe 2020 – COM(2011)500 final.

9 High and stable prices are often seen as a way to increase investment and the use of intermediate inputs, but their impact on innovation is much more controversial (see Sunding and Zilberman 2001). There is evidence that competitive price pressure has boosted innovation, in a variety of countries, see Mundlak (2000).

10 This figure is based on the €1.9 billion funding earmarked for the area of food, agriculture and biotechnology under the FP7 Cooperation program for the 2007-2013 period. The Cooperation program represents two thirds of the whole FP7 budget. Other items for agricultural R&D include some funding of agriculturally related research under the FP7 "Environment" theme, alongside the "People" program (e.g. Marie Curie scholarships) and the "Capacities" program (e.g. research for small and medium enterprises), as well some support under the cooperation and

programs such as capacity building, mobility of researchers, technology platforms, total Community support for agricultural R&D efforts may reach €500 million. Member states also provide outlays on agricultural R&D, amounting to €3.7 billion in 2008, providing for total EU funding on agricultural R&D of roughly €4.2 billion.[11] **It is instructive to view this approximate figure of €4.2 billion per year for EU public R&D funding in comparison with the €43 billion provided as direct payments to EU farmers in 2008, or the €103 billion of total transfers to farmers as measured as the OECD Producer Support Estimate.**

The EU Commission has called for the CAP to place greater emphasis on innovation, in particular in areas that help farmers face environmental and climate change challenges. Recently-tabled legislative proposals for the future CAP include a €5.1 billion budget for research and innovation within the CAP over the 2014-2020 period.[12] Commissioner Ciolos stresses that this "European Innovation Partnership (EIP) for agricultural productivity and sustainability", would more than double the current EU research budget for agriculture, but there are a number of uncertainties in the Commission's proposal. First, it seems that the €5.1 billion will draw largely from the (increased) R&D budget under FP8, thus designating a portion of the overall R&D budget, rather than signaling a major reorientation of the CAP towards innovation (Matthews 2011a, b). Second, it appears that a large share of the research and innovation funding will be geared towards dissemination to farmers, according to the wording of the proposal and various speeches by Commissioner Ciolos.[13] The third and most significant uncertainty is whether the Council and the Parliament will actually approve the proposal. The amount could be reduced as a result of efforts to decrease the CAP budget, particularly given budgetary pressures in many EU member states. Moreover, given that most of the Framework program funding is allocated on a competitive basis and is a percentage of real costs, the FP budget tends to be captured by some of the wealthiest member states whose ability to respond to calls is higher, and whose salary costs are particularly high, triggering opposition to a much larger FP budget in member states that benefit less. Finally, even if the €5.1 billion EIP is passed, it is important to view this in the context of the proposed total CAP budget of €387 billion.

In brief, one can see in the new proposal from the Commission an intention to provide greater orientation towards long term productivity and sustainability through the CAP. However, **the EU's budgetary proposals for 2013-2020 show little sign of a major reorientation from farm income support and structural funds towards R&D**, as advocated by Sapir et al. (2004) and others.

Responding to the Challenge – A Higher Priority for Agricultural R&D

The 2008 World Development Report of the World Bank argues for a higher global priority on investment in agriculture. **Recent evidence of slackening growth in yields and the likely future impact of climate change reinforce the need for a more environmentally-friendly and more productive agriculture. This will require a high rate of innovation which will not materialize without action on R&D.**

> On both sides of the Atlantic, public R&D expenditures on agriculture, ecology and the life sciences that will foster innovation and productivity growth remain modest in comparison to other areas, such as income support payments to farmers.

the coordination of research activities carried out at national or regional levels (ERA-NET scheme). Outside the FP7, some funds for agriculturally related R&D can be found in the support to rural innovation in the CAP's pillar 2, and in the budget of some EU agencies and institutions, including the Joint Research Centre. Taken together these budgets are very limited and the estimate given in the text is probably an upper bound.

11 Source Eurostat's Science Technology and Innovation statistics, figure for 2008. Out of the €87.6 billion of "Government budget appropriations or outlays on R&D" compiled by Eurostat, agriculture represented only 2.7% of the total. It is noteworthy that at the same time, the OECD estimate of EU public support for agricultural R&D was only €2.1 billion (Source: OECD monitoring report, components of the General Services Support Estimates). The OECD figure is based on data communicated by OECD Member states. In some cases the figure seems to account only for the share of agricultural research funded by the ministry responsible for agriculture, while the main national agricultural research institute may be funded through the ministry in charge of education and research.

12 Proposals for a Regulation of the European Parliament and of the Council. On support for Rural Development by the EuropeanAgriculturaFund for Rural Development. COM(2011)627 Final, 2011/0282(COD), Brussels 12October, 2011.

13 The program is presented as a way to "make more use of the results of the results of scientific research and innovation and to bring them closer to the farmer and agriculture" and that the €4.5 billion mentioned should fund agricultural consultancy, training and all activities which help to disseminate the results of research.

Neither the EU nor the US is demonstrating a pro-active approach to the funding of R&D in agriculture and the food system. On both sides of the Atlantic, public R&D expenditures on agriculture, ecology and the life sciences that will foster innovation and productivity growth remain modest in comparison to other areas, such as income support payments to farmers. **Public investment in R&D plays an important supporting role for private investment in the sector and both yield high returns to society.**

The current trend in the US is for reduced research expenditures at both the federal and state levels. Given the important position of US agriculture globally, under investment in R&D could have negative implications for the US international competitive position and add upward pressure to food prices. During a period of intense budget pressure, it is inevitable that the use of public funds will come under increased scrutiny, but **a shift in emphasis away from investing in agricultural R&D in the United States seems particularly short-sighted at the present time.**

The EU is increasing its budget on public agricultural R&D. But the shift of EU expenditure away from farm income support to agricultural innovation is limited. To put the situation in perspective, **the current annual €300 million funding for Food Agriculture and Technology under the FP7 equals the amount spent on direct aid to tobacco producers.** Even if the former doubled, following the Commission's proposals, this would hardly amount to a significant shift of EU budget priorities.

The growing pressure on food prices should trigger a higher priority for R&D funding in the EU and US. **The current priority given to supporting farmers' income rather than investing in the future of the sector seems to be extremely short-sighted given the growing challenges that agriculture faces.**

References

Alston, J.M., Beddow, J.M. and Pardey, P.G. (2009), "Agricultural Research, Productivity, and Food Prices in the Long Run", *Science*, Vol. 325, pp. 1209-1210.

Alston J. M. (2010). "The Benefits from Agricultural R&D, Innovation and Productivity Growth." OECD Consultant's Report, TAD/CA/APM/WP(2010)21, Paris.

Alston J.M., Andersen, M.A., James, J.S. and Pardey, P.G. (2010). Persistence Pays: U.S. Agricultural Productivity growth and the Benefits from R&D Spending. New York: Springer.

Ball V.E., Butault, J.P., Juan, C.S. and Mora, R. (2010)." Productivity and International Competitiveness of Agriculture in the European Union and the United States Agriculture," *Agricultural Economics* 41: 611-27.

Beintema N.M. and Stads G.J. (2008). Measuring Agricultural Research Investments A Revised Global Picture. Agricultural Science and Technology Indicators, background note, October.

Battisti D.S. and Naylor R.L. (2009).Historical Warnings ofFuture Food Insecurity withUnprecedented Seasonal Heat. Science 323, 240 (2009).

Brisson N., Gate, P., Gouache, D., Charmet, G., Oury, F.X., and Huard, F. (2010). Why are wheat yields stagnating in Europe? A comprehensive data analysis for France. Field Crops Research 119 (2010): 201-212.

Bruinsma, J. (2009). "The Resource Outlook to 2050: By How Much Do Land, Water and Crop Yields Need to Increase by 2050?" Paper presented at the FAO Expert Meeting, 24-26 June, Rome on "How to Feed the World in 2050", available at: www.fao.org/wsfs/forum2050/wsfs-background-documents/wsfs-expert-papers/en/.

Butault J.P. and Réquillart V. (2010). La stagnation de la production, l'essoufflement des gains de productivitéet le déclin de la compétitivité de l'agro-alimentaire en France. INRA, Paris and Toulouse.

Chavas J.P. (2011). Agricultural Policy in an Uncertain World.European Review of Agricultural Economiscs, 38, 3, August, 383-408.

Congressional Research Service (2010), Federal Research and Development Funding FY2011, R41098, March 10.

Fedoroff et al (2010). Radically Rethinking Agriculture for the 21st Century.Science 327, 833.

Fuglie, K.O. and Heiey, P.W. (2007), Economic Returns to Public Agricultural Research, Economic Brief No. 10, Economic Research Service, U.S. Department of Agriculture, Washington, DC.

Godfray C.H.J., et al. (2010). Food Security: The Challenge of Feeding 9 Billion People. Science 327, 812.

Heisey, P., Wang, S.L. and Fuglie, K. (2011), Public Agricultural Research Spending and Future U.S. Agricultural Productivity Growth, Economic Brief No. 17, Economic Research Service, U.S. Department of Agriculture, Washington, DC.

Keyzer M. (2010). Towards A Closed Phosphorus Cycle.De Economist 158, No. 4.

Lobell D., Schlenker W. and Costa-Roberts J. (2011).Climate Trends and Global Crop Production since 1980. Science DOI: 10.1126/science.1204531

Matthews A. (2011a). Post-2013 EU Common Agricultural Policy, Tradeand Development. A Review of Legislative Proposals. International Centre for Trade and Sustainable Development, Issue paper 39.

Matthews A. (2011b).The future role for the European Innovation Partnership for agricultural productivity and sustainability. Available athttp://capreform.eu/the-future-role-for-the-european-innovation-partnership-for-agricultural-productivity-and-sustainability/, accessed October 20 2011.

Mundlak Y. (2000). Agriculture and Economic Growth.Theory and Measurement.Harvard University Press.

Pardey, P. G., J. M. Alston, and R. R. Piggott, eds.Agricultural R&D in the developing world: Too little, too late?Washington, DC:International Food Policy Research Institute

Sapir A., Aghion, P., Bertola, G., Hellwig, M., Pisani-Ferry, J., Rosati, D., Viñals, J., and Wallace, H. (2004). An Agenda for a Growing Europe: the Sapir Report, Oxford University Press, Oxford.

Consultative Group on International Agricultural Research (2005). Science for Agricultural Development : ChanginggContexts, New Opportunities, Science Council Secretariat, Rome. http://www.cgiar.org/enews/december2005/scienceforagrdev.pdf

World Bank (2008). Agriculture for Development (World Bank, Washington,DC, 2008; http://siteresources.worldbank.org/INTWDR2008/Resources/WDR_00_book.pdf)

About IPC

The International Food & Agricultural Trade Policy Council promotes the role of trade in creating a more open, equitable, productive and sustainable global food & agricultural system. IPC makes pragmatic trade policy recommendations to help solve the major challenges facing the global food & agricultural system in the 21st century—the need to promote global food security, to sustainably increase productivity, and to contribute to economic growth and development.

IPC convenes influential policymakers, agribusiness executives, farm and civil society leaders, and academics from around the world in order to clarify complex issues, foster broad stakeholder participation in policy deliberations, and build consensus around pragmatic policy recommendations. More information about the organization and its membership can be found on our website: www.agritrade.org.