departments. The TF members participated in all these deliberations and the conference provided yet another opportunity to gather inputs from women present under one roof as participants.

Not only women scientists, but women technocrats, college teachers, women CEOs, college students and school students were present during different sessions. The only time a few men were present during the two-day conference was at the inauguration. In fact, during an interactive session a pointed comment was made about the absence of men, with women wondering whether they were talking amongst themselves, and whether talking to the converts has any relevance at all.

While such conferences serve the purpose of providing exposure to competent work done by women scientists and technologists to the world, in general, absence of male colleagues meant that women's work and achievements went unnoticed by their male colleagues, competitors and bosses. Pursuit of science is not done in isolation, but is a globally collaborative activity. Thus, listening to each other's work is a professional necessity. Since in today's world of science and technology women are in minority, their existence is unrecognized. Absence of male colleagues from this conference, thus defeated part of the purpose of the showcasing effort. The lesson to learn from this effort is not to organize women-only conferences, but to strive for a near-equal representation of both the sexes as speakers and participants, even if that has to be achieved by affirmative action!

Vineeta Bal*, National Institute of Immunology, Aruna Asaf Ali Road, New Delhi 110 067, India; **Vinita Sharma,** Department of Science and Technology, Technology Bhawan, New Mehrauli Road, New Delhi 110 016, India.
*e-mail: vineeta@nii.res.in

MEETING REPORT

Combating land degradation for sustainable agriculture – Is conservation agriculture the way forward for India?*

The need to address land degradation becomes critical looking at expectations from agriculture productivity to meet needs of food security in the country. Conservation Agriculture (CA) practices as pursued in many parts of the world are build on agro-ecological principles making land use more sustainable and thus helping farmers use agricultural inputs more efficiently. 17 June 2008, being observed by the United Nations Convention to Combat Desertification (UNCCD) as World Day to Combat Desertification, offered a perfect opportunity for Professional Alliance for Conservation Agriculture (PACA) to bring together concerned professionals involved with the subject of agriculture and environment to promote the cause of CA. The meeting focused on deliberations around the subject 'Is conservation agriculture the way forward for India?'. The meeting attended by over 35 participants brought together concerned stakeholders, mostly practitioners and believers in the cause of CA and included scientists from Indian Council of Agricultural Research (ICAR), the international agricultural system, State Agricultural Universities (SAUs) and policy makers.

The opening session began with Sanjeev Vasudev (Society for Strategy, Technology & Delivery for Development) welcoming the delegates on behalf of PACA and highlighting the need for CA to reflect on food security situation the world is facing today. The brief introduction paved the way for the inaugural presentation by R. S. Paroda (formerly at ICAR), Trust for Advancement of Agriculture Sciences, who chaired and made a presentation on the 'Major concerns of Indian agriculture'. He related these to global concerns such as climate change, land degradation, droughts, desertification, declining buffer stocks of food crops world over, need for linkages to the market, increasing role of private sector and farming systems approaches. Dwelling on three UN Millennium Development Goals (MDGs) relevant to agriculture, eradication of extreme poverty and hunger (MDG 1), he stressed for ensuring environmental sustainability (MDG 7) and expressed the need for developing a global partnership for development (MDG 8). He referred to the need to take the knowledge from basic sciences and translate them into practical products/agricultural innovations. He stressed benefits of participatory research with scientists working on farmer-field locations, illustrated through successful cases in Central Asia and India. He ended by reminding that path ahead was not likely to be smooth and strategies to meet the goals of sustainability would emerge only from customized eco-regional approaches.

R. B. Singh (formerly at FAO) deliberated on 'Reforming agriculture to meet needs of climate change with specific reference to land degradation'. The presentation addressed two important issues: land degradation and desertification and emphasized the need to understand the processes of desertification beyond technology dissemination. Footprints of agriculture on climate change were a matter of both economic and ecological concern. He shared findings from National Farmers Commission with special reference to farmers in rainfed areas and expressed the need for market stabilization fund or AgriRisk fund to meet farmers' livelihood requirements and ease migration pressure. A hint of caution was sounded with respect to crop diversification especially related to rice and wheat that may harm cereal needs of the nation. He concluded that partnership amongst stakeholders will pave the way for India to assume a leadership role in south Asia with CA as the way forward.

*A report on the meeting 'Combating Land Degradation for Sustainable Agriculture – Is Conservation Agriculture the Way Forward for India?' held at the NASC Complex, Pusa Campus, New Delhi on 17 June 2008. The meeting was organized by PACA, a joint initiative by the Society for Strategy Technology Delivery for Development and the Centre for Advancement of Sustainable Agriculture.

Following these introductory presentations, I. P Abrol (Centre for Advancement of Sustainable Agriculture) set the stage for the context and concerns to make CA work for India. Giving the extent of CA popularization, he asserted that elements of CA were based on sound, well-researched scientific principles and had been validated in different geographical/social situations with some excellent beginnings already made in India. He reiterated CA to become a farmer-led movement strongly backed by the scientific community through a multi-stakeholder partnership model. The major challenges for CA to work were presented as posers for an interactive panel discussion to follow and give direction to the meeting.

The interactive panel discussion included eminent discussants from diverse institutions who shared their experience with specific benefits, constraints and scope related to CA adoption in the farmer's fields. These panelists were mainly from the Government, SAUs, ICAR and Non-Governmental Organizations (NGOs). The session started with Sanjeev Chopra (Department of Agriculture, Government of West Bengal). He emphasized that CA be looked for the sustainability of the public policy system that did not cater to the needs of small and marginal farmers. He believed that, CA efforts have become more useful in the context of current decentralized panchayati system that focuses on strengthening local resources by building capacity at grassroots. R. K. Malik (Haryana Agriculture University) from his experience of practicing CA on farmers' fields, highlighted CA as an answer to the inefficiencies in the system specifically with respect to fertilizers and chemicals. He spoke about his experience with adoption of CA technologies such as zero-tillage (ZT) and bed planting. The experience was related to both technological and institutional constraints to the adoption of CA. Rigid mindset of scientists was a major impediment to CA adoption, while farmers were happy to follow it. To this end, he concluded, CA research was best done in farmers' fields.

S. S. Grewal (Society for Promotion of Conservation and Environment) focused on challenges related to CA adoption in the hill and foothill ecosystems (Shivaliks and foothill regions of Aravallis) that were prone to severe resource degradation and equally crucial to ecosystems in the plains. Since CA is build on agro-ecological principles, it offers a hope to answer resource degradation problems in the region. P. K. Joshi (National Centre for Agricultural Economics and Policy Research) addressed some of the socio-economic and policy issues pertaining to CA adoption. The need for conflicting approach of scientists and farmers to reach a point of convergence was stressed. He suggested an amalgamation of technologies, institutions and policies as the way forward. M. S. Gill (Cropping Systems Research Directorate) highlighted the research efforts using integrated farming systems approach in the selected 32 locations spread across 25 states that cover most of the agro-ecological regions of the country. Ravi Gopal (International Maize and Wheat Improvement Centre) shared his experiences of CA adoption benefiting farmers (raise productivity of rice) in the eastern Indo-Gangetic plains of Bihar, Jharkhand and West Bengal. Lack of machinery manufacturers and equipment repair services were major bottlenecks in CA adoption.

The panelists' session was followed by discussions with participants who expressed views and raised queries that were well responded by the panel. This session brought out some pertinent questions, constraints and issues. The chair, Paroda summarized the panel discussions and pointed to the specific researchable issues related to soil heath, decomposition of organic matter, crop sequencing, weed control, impact on transitioning farmers, scientist's mindset, policy support, technology dissemination, information exchange, extension mechanisms, human skills and participatory approaches to help CA adoption. He cautioned not to take up CA as a blanket approach, but specific to eco-regions/farming situations. He emphasized the role expected to be played by PACA and the need for effective functioning to catalyse the process. While executing plans, learning from global/regional experiences needed to be incorporated to form a global partnership program on CA with requisite sources of funding to take this forward.

The meeting came out with specific recommendations and ended with an affirmative note with most participants agreeing that CA does represent a way forward for India.

Recommendations

- PACA was a timely initiative to take the cause of CA forward, considering the current challenges facing agriculture by way of widespread problems of resource degradation, declining foodgrains productivity, rising fuel prices, and impacts related to climate change.
- It is important to develop and promote CA technologies in the context of well-defined natural resource/socio-economic domains and farming systems in different eco-regions. While efforts have been made in irrigated rice–wheat-based cropping systems, other important ecologies such as rainfed regions are crucial for India. For this a dialogue can be initiated with the concerned organizations such as National Rainfed Authority of India.
- CA practices benefit the farmers in the short term through reduced cultivation costs, and also in the longer term by improving the quality of the resource base. There is therefore a need to initiate long-term studies on the impact of CA practices on productivity and resource base quality at sites representative of major farming situations. A major lead thus should come from SAUs and their regional research stations (including KVKs) with strong support from ICAR institutes. Scientists will need to work along with farmers in a partnership mode in testing and adapting new technologies and responding to new problems as they emerge. This will also call for relevant capacity building at the local and national level.

Initiatives such as PACA can play a significant role in catalysing the much needed change by bringing relevant stakeholders on-board for a cause which requires to be addressed urgently. Building and working in partnership mode with a range of stakeholders will be the key and could be achieved by organizing stakeholder meetings at the regional level to outline strategies for CA. This must be pursued aggressively and without losing time. In view of the forthcoming Fourth World Congress on Conservation Agriculture, being organized in India early this year, PACA should seriously plan its own agenda to promote CA in India.

Sunita Sangar*, Sanjeev Vasudev and **I. P. Abrol,** Professional Alliance for Conservation Agriculture (PACA), 1st Floor, NASC Complex, DPS Marg, Pusa, New Delhi 110 012, India.
*e-mail: sunitasangar@yahoo.com