

Promoting Sustainable Development of Agricultural Mechanization in the Asian-Pacific Region: “Taking A Global Perspective”

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Dr John Stevens is an agronomist, international agriculture consultant, inventor, engineer and a farmer. John holds a Masters in Range Management from Lincoln University, New Zealand and a Ph.D in Agronomy from the University of Nebraska, USA. He has spent over 30 years working as a consultant on agricultural development programmes in South America and throughout Asia, specialising in seed technology, plant breeding, agricultural mechanization and agricultural rehabilitation covering all stages of project cycles. During that time he has also been deeply involved in research, development and field evaluation of plot / small scale and farm seeding equipment for reduced tillage and difficult arable soils, suited to emerging, transitional and developed economies, particularly since 2000 through his company Flexiseeder Ltd. He has a very close working relationship with colleagues at the Swedish University of Agricultural Sciences, Qingdao Agricultural University and Lincoln University where he is deeply involved with the work of the Lincoln University Seed Research Centre and a Trustee of the Seed and Mechanization Development Charitable Trust (SEMEC). Through this association he has supported IAMFE (International Association for the Mechanization of Field Experiments) globally since 2000 / ongoing including senior executive positions.

In regard of the importance of networking for sustainable Agricultural Mechanization, we introduce the International Association for the Mechanization of Field Experiments (IAMFE). Its global head office is in Qingdao Agricultural University. It is a non-profit organization founded in Norway in 1964. It has more than 120 Countries as members or contacts, and Branches in 10 countries. It was founded by Prof Egil Oyjord, Norway.

Lincoln University Seed Research Centre - SEMEC (Seed and Mechanization Development Charitable

Trust) is the contact and focal point for Australia & New Zealand including 13 years of collaborative activities in agricultural seeding equipment with Qingdao Agricultural University; and through SLU (Swedish Agricultural University, Uppsala), other Nordic and European Agricultural Universities, research stations and commercial companies.

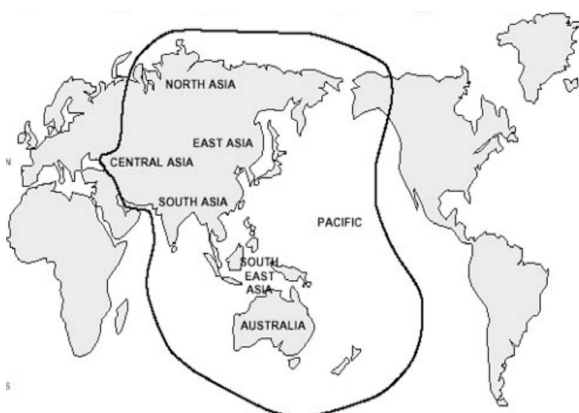
Out of this association, a new generation of global modular plot and small farmer drills has been developed, and brought into the market, suitable for local manufacture and use in emerging,

transitional and developed agricultural economies, covering traditional as well as reduced and zero tillage. A key feature of these technologies is that the coulters require substantially less down pressure than normal to penetrate the soil. Meaning lighter than average frames and other related components including necessary tractor power can be used.

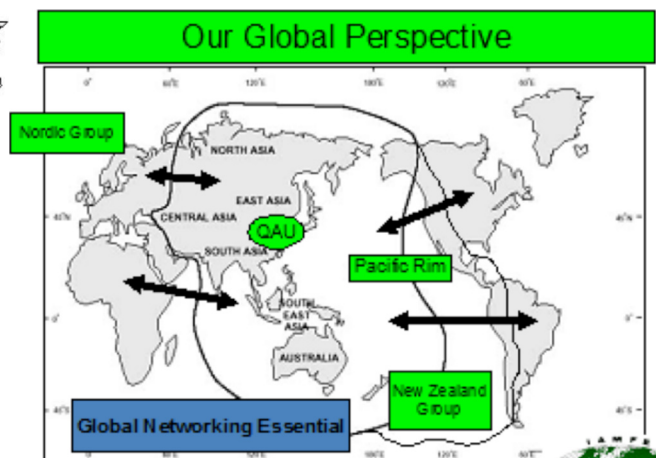
Flexiseeder Ltd is the core risk taking / financial element of this very successful ad hoc global collaborative group which includes a strong core philanthropic / educational / technical voluntary seed and machinery help-group including placing core designs into trust with SEMEC for member use including IAMFE members, free of royalties. Membership is open to individuals, public and private organizations, agencies and other entities.

Resulting from this experience including sourcing high-quality components from emerging and transitional as well as developed economies within Asia and the Pacific region, we propose that an expanded perspective is needed to assist with the sustained economic and social development, manufacture and extension of agricultural mechanization across emerging, transitional and developed economies. This is in stark contrast to traditional more localized regional perspectives, including helping the poorest of the poor.

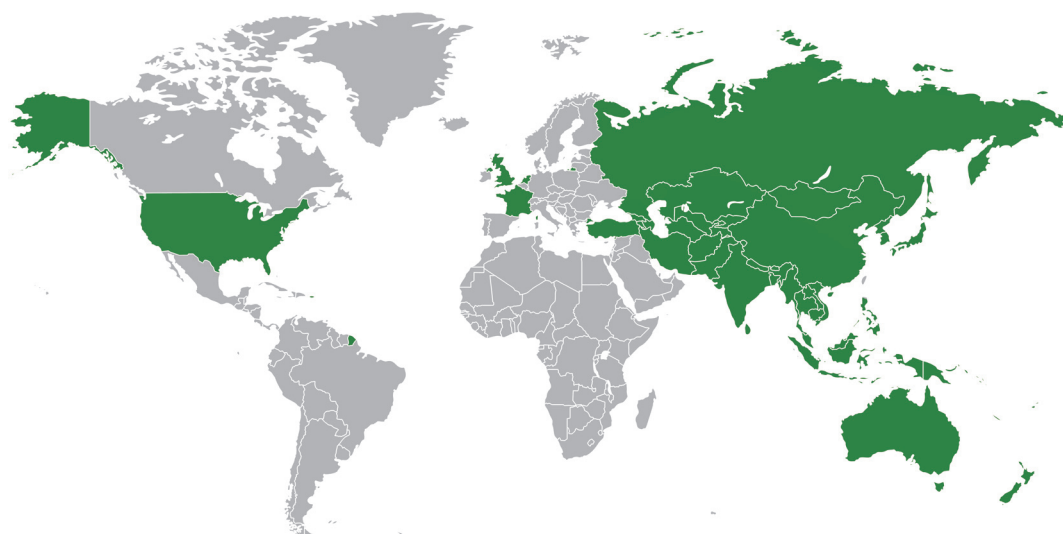
Traditional Regional Geographic Perspective – where Australia and New Zealand tend to fall outside of equipment networks for the rest of Asia, in spite of sourcing a substantial proportion of their machinery components from these areas. It is a dual economy which needs to change, for the benefit of all.



Traditional Regional Geographic Perspective



Our Global Perspective matches well with the geographic spread of the 52 country membership of ESCAP including 9 associate members (global coverage shown below); and the mandate of ESCAP, of which CSAM is an integral part. To this needs to be added improved networking to facilitate “cross over” of technologies between member countries spanning emerging, transitional and developed economies in properly planned and financed ways likely to be economically viable and sustainable.



Map showing United Nations Economic and Social Commission for Asia and the Pacific members

Regional and global networking in seed and machinery year-round on basis of agro-ecological overlap / analogues is a powerful and now well proven tool for:

- Promoting and facilitating end user contact networks that involve using integrated Seed, Machinery and Livestock chain - value added (pyramid) approaches across the full range of levels of economic development;
- Rationalization and modularization of components / parts / components across brands, end uses and economies (including but not limited to lights, wheels, bearings, chain, sprockets, castings);
- Highlighting advanced component manufacture – for example casting and machining seed drill parts; and
- Mandating focal points to bring science, parts and production closer together – “hands on”. Flexiseeder is a good working example of this.

From 2000 -2013, the Flexiseeder group has been working in the following major areas:

- Commercial product – Modular plot drills & farm drill components – mixed and matched across brands / economies / seed, machinery and livestock chains;
- New and existing technologies up-graded and offered back to suppliers;
- Nordic – NZ (year round activities) with outreach, including China where many parts are sourced and voluntary student training given;
- Basic frame design placed in trust – including selected coulters equally suited to reduced tillage in emerging, transitional and developed economies; and
- Selected elements / modules retained for commercial production including technical back-up to help sustain operations.

Our applications cover a wide range of seed, machinery and livestock value added chains (pyramids). For instance:

- Tropical, Sub-tropical, Temperate, Mediterranean, Continental, Sub-arctic, Antarctic ecologies;
- Crop improvement / seed industry at all levels covering breeding, cultivar identification, development and maintenance - including accelerated seed increase & commercial seed production;
- Applied global and local agro ecology – mixing / matching cultivars, crops, equipment, projects and programmes using sequential approaches bridging emerging, transitional and developed economies;
- Agricultural mechanization particularly seeding into difficult environments - traditional, reduced and zero tillage (plot, small scale and farmer machines); Because our coulters need less than normal down pressure to penetrate, our basic test bed suited to all global conditions / situations is, by using a “Lego like” approach, also the basic design of our farmer drill for emerging and transitional economies. Easily scaled up for broad acre machines.
- Project identification, documentation, fund raising, start-up monitoring and evaluation, training at all levels, emergency relief, rehabilitation and development support.

The Flexiseeder ad hoc group is now ready for new members and investors so that financial management and co-ordination can be strengthened and handed over to subsequent generations so as to continue

development and sustain the technology. At the China EXPO we saw many new modules, components and complete items which would fit in well to the Flexiseeder range targeting emerging, developing and developed economies. Including mentoring / training / philanthropy / commercial / and educational aspects; and, an on-line shop prepared for investors.

The present structure of Flexiseeder is illustrated as below:

- 1) Flexiseeder Ltd, a small family company and IAMFE member which is the major funding and risk taking entity for the group; open to suggestions and guidance including being re-structured / mentored / expanded as appropriate to provide necessary sustained support for the Flexiseeder group going forward;
- 2) Swedish Ag University (Swedish contact point for IAMFE) and Lincoln University Seed Research Centre / SEMEC (NZ & Australia contact point for IAMFE);
- 3) Qingdao Agricultural University as a core educational / extension – outreach base example of IAMFE Global Headquarters at work in support of its members; and
- 4) Regional / global portfolio of end users and contracted suppliers.