

# Truly sustainable biofuels

Around the world, the search is on for biofuel production systems that won't inflate food prices, damage productive ecosystems and burn ever more fossil fuel.

All these issues will be addressed in the Bio-Protection Research Centre's newest project which aims to establish a sustainable biofuel industry in New Zealand. Professor Steve Wratten, who is leading the project, explains that it has four sustainability goals.

"First and most important we want to identify high yielding oil feedstock crops which can be grown on marginal land. This will ensure that our biofuel production isn't compromising food production and forcing up food prices.

"Second, we will be finding ways to grow those crops without damaging the existing services supplied by nature such as biocontrol, pollination, mineralisation of plant nutrients and so on. In fact we will be aiming to improve the cropping ecosystem if possible.

"Thirdly, once we have identified the plants and got them growing well, we'll be investigating the use of natural microbes as soil inoculants to increase both crop yield and oil production. The cost of biodiesel feedstock, or raw material, is 80% of the overall production cost, so it's essential to produce it as efficiently as possible.

"Finally, throughout the whole project we will be measuring total energy inputs and outputs. This energy life-cycle analysis will provide the hard data to back up sustainability claims."

Professor Wratten says the inclusion of the sustainability aims has resulted in the inclusion of numerous partners.

"Biodiesel Feedstock" is a \$4 million, six year project funded by the Foundation for Research Science and Technology, with global fuel producer Chevron as the principal commercial partner and co-funder. Also collaborating are Solid Energy New Zealand, the owner of Biodiesel New Zealand; Plant and Food Research; Nufarm, crop protection experts; and Lincoln University, whose staff carried out initial research for Chevron into crops with potential to produce novel biofuels.

"We are also working with two Maori groups, the owners of the Taharoa C Block Incorporated (King Country) and Te Runanga o Ngai Tahu to identify blocks of land which are suitable for crop growing."

Dr Dick Martin from Plant and Food Research, Prof. Alison Stewart from the Bio-Protection Research Centre and Assoc. Prof. Bruce McKenzie of Lincoln University will be working with Professor Wratten as research leaders.

## For more information:

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Dr Dick Martin, Prof. Steve Wratten, Prof. Alison Stewart and Assoc. Prof. Bruce McKenzie inspect a brassica crop.