

PROCEEDINGS
APS SEMINAR 2005

INSURING THE
AGRICULTURE & FISHERIES
SECTORS IN THE
MALTESE ISLANDS

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INTRODUCTION

This publication is a record of the proceedings of the 2005 APS Bank Annual Seminar, which was entitled “Insuring the Agriculture & Fisheries Sectors in the Maltese Islands”.

Although this theme had already been discussed during our first seminar back in 2000, the Bank felt that more had still to be done to satisfy such a vital need of these two primary sector industries, especially now that Malta is a member of the European Union.

In line with what has now become established practise, presentations were made by both local and foreign experts, two of who were representing the Food and Agriculture Organization of the UN. On this occasion we were also honoured to have Mr. Guy Vernaeve, the Secretary General of EUROPECHE COPA-COGECA, who delivered a short message to the Maltese fishermen.

The Bank has undoubtedly achieved its goal. Thanks to this seminar and the knowledgeable speakers it has managed in once again bringing to the fore the importance of insurance in agriculture and fisheries. It is now up to the operators, the insurance industry and the authorities to discuss and find the most suitable solutions for the local needs.

E. Cachia
Chief Executive Officer
APS BANK

INSURANCE IN THE AGRICULTURE AND FISHERIES SECTOR IN MALTA

Your Excellencies, Ladies and Gentlemen,

Welcome to the Sixth APS Bank Annual Seminar on the Development of Agriculture and Fisheries in the Maltese Islands. On behalf of APS Bank I thank you for accepting our invitation. Your presence is a demonstration of the interest that the Seminar has been generating and, at the same time, it is an encouragement to continue with this yearly activity.

These seminars focus on specific issues that bear directly on the development of Agriculture and Fisheries in the Maltese Islands. In the year 2000, we introduced this annual event with a theme that, surprisingly, seemed alien to many at the time: the role of insurance in the agriculture sector. Here we are today, reconsidering the same topic and extending analysis to the fisheries sector. This time insurance is no longer a pure academic issue. It is a policy tool that Maltese farmers and fishermen have to consider carefully in the context of a changing trade and financial environment in their search for profitable economic activities.

Farmers relied on their strong determination to go on in spite of market and natural constraints. Many bore the

outcome with fortitude, putting in long hours oblivious of the changing labour market opportunities around them. And they relied on government support in cash and kind when disease or the weather hit the sector. But many other would-be farmers sought regular employment and incomes elsewhere, and continued to be active in agriculture on a part-time basis. Part-time employment at present represents the equivalent of two-thirds the entire agricultural labour force, expressed in the number of man-hours worked per year. In general terms, a similar situation holds for the fisheries sector.

With the advent of a more liberalised trade environment and Malta's membership of the European Union, a major break with the past is currently under way. The cost configuration that prevailed over the past half century is giving way to a new cost structure that, in turn, demands a critical consideration of the existing output composition. The relationship between government and fishermen and farmers is transforming itself into one where emphasis of collective support goes on creating the means to continuously regenerate income through profitable production rather than on supporting a sector's income via price and import controls. Insurance in the fisheries and agriculture sectors is one element in this new relationship.

Like all things novel, insurance is bound to create uneasiness in the minds of many who have to deal with the financial tool. Although Maltese farmers and fishermen are not totally alien to the concept and the actual financial instrument and formalities that are incurred, yet they are now expected to start assessing production and distribution risks much more actively than in the past. This means that more time and resources have to be allocated to this activity in addition to the other 'new' obligations that they have

to assume like, for example, a greater awareness of health and environmental factors. Incidentally, the introduction of insurance in these two economic sectors is bound to enhance awareness even more!

To guide us through the intricate world of insurance in these primary economic sectors, we are pleased to have speakers who can combine both theoretical and applied issues as well as familiarity with the two particular economic activities and the people who work in them. The field of insurance theory and practice is a challenging subject by itself. But equally challenging is knowledge of the way future buyers of these insurance products think and their willingness to wield new financial products and costs as part of their profitable survival programme.

The first session of the programme focuses on technical issues. Mr. Phil Cottle, Principal – AgroForest Risk Management Limited, London, will discuss the underwriting and organisation of crop insurance. Mr. Ake Oloffsson, Rural Finance Officer, FAO, will present two sets of ideas. One refers to the insurance of crops in developing countries; the other considers aquaculture and livestock insurance.

The second session considers the world in which the products and organisation proposed for discussion have to be implemented. Mr. Joe Borg, with a long experience of the agriculture sector and the farming community in Malta and Gozo, evaluates farmers' expectations on insurance in the context of the practices that have been in place for many years. And Mr. Raymond Bugeja, Secretary of the National Fishermen's Co-op, examines fishermen's views of insurance for a sector that has to abide by recent EU rules in the Mediterranean fishing scenario. The proposal to adapt to new ways of carrying out economic activity has to account for producers' expectations and apprehensions.

Only after these factors are taken properly into account can one chart an effective plan for their implementation.

The input of the four speakers shall provide a solid base on which discussion of the themes can be fruitfully conducted. The four contributions will be shared with a wider audience when they are published in the seminar's proceedings.

The encouragement that we receive from the Ministry of Rural Development and the Environment, from Malta's representative at the FAO, His Excellency Abraham Borg, and from officials at the FAO in Rome, is gratefully acknowledged. They made possible this morning's activity. I wish also to publicly acknowledge the support we found from Mr. Richard Roberts, former official at the FAO, and an active participant in the seminar on insurance in 2000. Mr. Roberts could not be present today but he will still contribute to today's event since, in some way, he collaborated with Mr. Cottle and Mr. Oloffson in the preparation of their respective submissions.

We are honoured by the participation in today's forum of Mr. Guy Vernaève, Secretary General EUROPECHE who kindly found time in a very busy schedule to be with us on this occasion. It is Mr. Vernaève's first visit to Malta since Malta's membership of the EU and his words to Maltese fishermen and farmers will surely be noted carefully by all of us. They emphasise the EU perspective, which means a set of balancing forces that have to be attained in the interest of the fisheries' sector primarily in an EU-Mediterranean context. I now ask Mr. Vernaève to make his presentation.

Guy Vermaeve, Secretary General of Europêche and responsible for fisheries and aquacultural affairs in COPA/COGECA)

MESSAGE TO MALTESE FISHERMEN

It is a great delight for me to be invited to this seminar and to briefly address a message to you all and particularly to Maltese fishermen who, I am proud to say on their behalf, have become members of both Europêche and COGECA since the enlargement of the EU in May 2004, and this through the affiliation of the Apex organisation of Maltese fishermen.

I would like to concentrate on three topics in the time given to me:

Firstly, I will briefly illustrate who we are and explain the environment in the fisheries sector in Brussels. Secondly, I shall present to you, by way of examples, two burning dossiers in which we are particularly active at the moment and finally, I would like to say a few words about good governance.

Who we are and the fisheries environment at European level

I am representing three European organisations: Europêche, the Association of National Organisations

of Fishing Enterprises in the EU (private shipowners), COGECA, the General Confederation of Agricultural Co-operatives in the EU as well as COPA, the Committee of Agricultural Professional Organisations in the EU. Beyond its farming interests, COPA/COGECA also represents co-operative shipowners as well as fish farmers. Europêche has 17 members in 12 countries of the EU. The interests represented by these organisations can vary quite a lot in terms of length, volume or power of their affiliated boats. COPA/COGECA amounts 69 member organisations in the 25 countries of the EU.

We are exerting, in a complex way, influence on the various EU institutions (European Commission, European Parliament, Economic and Social Committee, Committee of Regions and Council of Ministers) in all questions dealing with the elaboration and management of the Common Fisheries Policy (CFP). The most important institution is of course the European Commission as it is the starting point of the EU legislation.

Europêche and COGECA are formally recognised in two Committees which have been created according to a decision of the Commission; the Advisory Committee for Fisheries and Aquaculture in which the following European families are represented: private shipowners, co-operative shipowners, producer organisations, stock breeders of molluscs and shellfish, breeders of fin fish, the processing and marketing sectors, salaried fishermen, consumers, NGOs for environment and development. The other body is called the Sectoral Social Dialogue Committee in the sea fishing sector in which, on the one hand, you find the employers (Europêche/COGECA) and on the other, the workers in the fisheries sector organised at European level (the European Transport Workers' Federation). Apex Organisation of Maltese Co-operatives can be represented

in both Committees and through that, the representatives of the fishermen's co-operatives of Marsaxlokk.

We try to meet on a regular basis high civil servants from the Commission as well as from other EU bodies and I can tell you that we had already one very successful meeting with the new "Fisheries and Maritime Affairs" Commissioner, Mr. Joe BORG. Finally, I would say that further to DG "Fisheries and Maritime Affairs", we also have contacts on various issues with DG SANCO, Environment, Employment and Social Affairs.

The burning dossiers in which we exert influence

The management measures for the sustainable use of fisheries resources in the Mediterranean sea: as you know, a proposal for a Council Regulation in this area has been elaborated by the Commission one and a half year ago. It is still not adopted because it creates a lot of problems and concerns, not only according to fishermen who have rejected the proposal in its contents, but also the European Parliament and the European Economic and Social Committee.

Having been consulted in the framework of the Advisory Committee for Fisheries and Aquaculture, the professional and co-operative organisations of the Mediterranean fisheries sector represented in Europêche and COGECA do agree that there is a need to update a Regulation from 1994 on technical measures in order to adjust it to current needs on the basis of solid scientific data. They also think that fisheries activities should be rationalised and that all necessary means should be met to combat abusive and illegal fishing. Nevertheless, we think that the Commission proposal is unacceptable as it stands, on account of the fact

that it provides for the introduction of new limitations on catching gear and the imposition of technical characteristics for different fishing systems in the Mediterranean that will severely penalise professionals concerned.

The professional organisations in the sector that we do represent also denounce the fact that the technical measures proposed, unjustified in the case of certain fishing systems, are to a large extent inapplicable in the Mediterranean and cannot be accepted by companies, the activities of which will be hampered at economic and social level. Furthermore, some of the measures proposed are very debatable from an environmental point of view, for they lack a sound scientific basis or run counter to the available data and ignore research findings and those coming from regional co-operation projects.

And so, what do we do now? We keep in touch, at Européche/COGECA level, with the European Parliament and the Commission, to make sure that substantial changes will be made in the proposal at the time of a compromise to be elaborated in the decision-making process with the Council of Ministers. We know that Commissioner BORG is very sensitive to this issue and we will try to discuss this dossier with him very soon, also in the context of the newly created Mediterranean association of fisheries organisations which is called MEDISAMAK.

Another subject which is of great importance for the European shipowners in the present context is the recent Commission proposal for a Council Regulation on the European Fisheries Fund : only ten days ago, Européche and COGECA adopted a unanimous position on this subject and we will discuss about it next week with Commissioner BORG. We also intend to engage later on a technical debate with the services of the Commission and we will participate in a hearing with the European

Parliament at the end of March.

Our position is broadly the following: in spite of some interesting elements in the document, the shipowners in the fishery sector in Europe globally consider the Commission proposal to be worrying since it only offers little perspectives for the future of the fisheries sector, in particular as regards the development of its enterprises. Europêche and COGECA regret the absence of a long term Commission vision offering perspectives for a profitable fishing sector which has been faced with long periods of restrictions and, still, the reduction of its fleet.

We remain concerned that the proposal for the European Fisheries Fund continues to be based on the December 2002 decisions regarding the reform of the CFP which the sector largely contested at that time on following elements: removal of aid for fishing fleet renewal, transfer of vessels to third countries, joint ventures, temporary associations of enterprises, constitution and functioning of producer organisations and eligibility for vessel modernisation premiums limited to safety, working conditions and equipment reasons only.

We also believe that the fishing sector is too unfairly overloaded with a series of restrictive measures (drastic reduction of the fleet, important limitation on the aid for the extractive and processing sectors, aquaculture and marketing as well as the exclusion of the aid for the major fishing zones in the EU, in terms of the high employment generated by the fishing sector). Yet, other activities than fishing also influence the state of the sea resources but these activities are not sufficiently taken into account. I herewith refer to coastal tourism, sport fishing, sand and gravel extractions, sea movements and dumping, offshore activities, etc.

I could of course be very more detailed in my presentation

on the subject as we have a very comprehensive position but I would still mention one last concern which is our request for minimum obligatory funding in Member States, specifically earmarked for social economic measures in order to counteract the negative effects of the reform of the CFP. We believe that in the absence of national co-financing, professional organisations (being private or semi-public) in the fisheries sector should be authorised to provide the necessary co-financing for certain collective projects in lieu of the competent national authorities.

Good governance

In the context of the reform of the Common Fisheries Policy as adopted in December 2002, the Council of Ministers decided on the creation of Regional Advisory Councils (RACs) in order to contribute to the realisation of the objectives of the CFP. These Regional Advisory Councils are or will be mainly composed of fishermen and other interest groups concerned by the CFP. Europêche and COGECA do intend to actively participate in these bodies which have been created for the following regions: North sea, North western waters, Baltic sea, South western waters, Mediterranean area, long distance fleet. A further RAC has also been established for the pelagic sector.

The Commission refers to the RACs as an example of good governance. We believe that the objectives of the CFP could be better achieved by involving the fishing industry more. It can put forward observations and allegations and, if necessary, alternative reports to those presented by scientists in the context of the RACs. To this end, the fishing industry should be given time to analyse the scientific reports.

Let me finish my statement by referring to a Chinese proverb: *“Tell me and I’ll forget, show me and I’ll remember, involve me and I’ll understand”*. As this Chinese proverb says, if the fishing industry becomes involved, it will understand and accept the rules imposed by the CFP, which at the end of the day, is in the interest of all parties concerned.

Thank you for your attention.

FACILITATING FINANCE IN FARMING (ISSUES AND OPTIONS FOR AGRICULTURAL INSURANCE IN MALTA)

Introduction

Ladies and Gentlemen, it is a great pleasure to be able to make a presentation at the APS Seminar, and special thanks are due to APS for making this opportunity possible through their support. Such events are always a double pleasure, meeting as one does such a wide variety of experienced professionals and specialists in their chosen fields (to coin a phrase).

Today, I am going to examine the challenges of establishing crop insurance in Malta. While it is my first ever visit to this country, I have been able over past years to discuss these issues with brokers and insurers from Malta in my previous role as an agricultural risk consultant for the London and international reinsurance markets.

Background

Since the late 1980s I have been working with an international team now dispersed through take-overs and other events, that provided risk assessment services mainly

to the Lloyd's insurance and European reinsurance market in London. We also worked for agribusiness corporations as well as agencies such as the FAO (Food and Agriculture Organisation of the United Nations in Rome) and the World Bank designing schemes on a local, sector or national scales.

The issues today are to:

- Explain the added value that insurance has to offer the grower;
- Outline global crop insurance today;
- Describe factors driving demand for crop insurance;
- Explain prerequisites for crop insurance;
- Identify barriers to crop insurance in Malta;
- Offer two alternatives for crop insurance provision.

The Added Value from Insurance

Risk Management Tool

Crop insurance is just one of the risk management tools available to growers. With or without insurance growers should manage the crop with care and professionalism, to optimise yield and product quality so as to ensure the best prices in the open market, or through co-operative marketing organisations, forward contracts or even futures markets.

The important fact to note is that insurance does not directly increase a grower's income. It merely helps manage risks to this income. The grower has to take a judgement that the short term increase in production costs due to insurance premiums will lead to longer term stability in his business.

Protection from the Improbable Event

The insurers' function is to protect the grower from the unexpected event, or more accurately, the unlikely (i.e. low probability) event that occurs perhaps every twenty, fifty or one hundred years. Examples may be a crop fire, excessive heat shrivelling crops, exceptionally low temperatures, hail, excessive rain, or more commonly, windstorm.

Insurance does not work for everyday losses as the cost of those regular expected losses and claims plus insurer administration costs would outweigh any premium that could be charged. Most policies incorporate an element of risk sharing, by means of a deductible (also known as an 'excess') that is designed to remove these costs of everyday risks from the insurer. So while the grower is still exposed to everyday farm risks he should have protection from the major loss that would severely disrupt his business and reduce his annual income.

Spreading Risk Reduces Insurance Costs

Thus insurance does not and cannot obliterate risk, but it does spread risk across an industry or an economy, and via international reinsurance extends this spread of risk to the international economy.

Insurance companies also spread risk through time as the success of an insurer is measured over many seasons of crop insurance. This is particularly notable these days as insurers are now aware that El Niño / La Niña seasons tend to lead to very broad-based losses across their global portfolio due to drought, fire and flood that may lead to net losses for insurers.

Greater Financial Security & Credit Rating

Insurance has other indirect benefits. Growers tend to have seasonal income flows that follow harvest, crop storage and/or transport and sales. Apart from seed/seedlings and fertiliser, pre-harvest management often requires much labour time to weed, prune, manage pest and disease, optimise soil fertility and maintain equipment. At the same time the growers needs to live and support their families.

This requires credit from friends, family or banks, and all these sources are more readily able to lend money if they know that any significant risks have been protected through insurance. Insurance is a substitute for collateral and for banks may also lead to cheaper credit.

Improved Farm Investment

At a time when Maltese agriculture is being encouraged to improve, restructure and rationalise following EU entry, it is entirely appropriate that growers should consider the use of insurance as an added security when making new investments in the production or marketing processes.

Market Drivers for Crop Insurance

Crop insurance is always a complex instrument to implement, having both technical issues that have to be addressed to ensure that commercial insurers will take the risks, farmers to find the premium affordable for their perceived risk as well as policy and political objectives in demonstrating the care of the rural economy by central or regional governments.

I would add that today there are increasing environmental issues that the agriculture sector has to face related to emissions, biodiversity and sustainability. These are 'new'

or at least newly-valued farm ecosystem services that must be optimised and farmers rewarded for increasing or maintaining their provision, related as they are directly to the quality of land use and farm management. Such eco-system services are also at risk from the same natural hazards, and require a longer term planning by farmers and insurers.

Drivers for insurance include:

- Impact of *climate change* on frequency and severity of weather events that will damage crops. There is little doubt that frequency and severity of loss events is increasing in agriculture. Research I have done on forestry fires shows that fire event severity (rather than frequency) has risen significantly over the last twenty years.
- Trends toward *greater specialisation* and consequent need for more finance into farming through commercial borrowing. Specialisation is required to optimise income and to attain the quality and volume standards demanded by market outlets.
- The *World Trade Organization (WTO)* regulations that forbid governments from subsidising agriculture directly; does permit the subsidisation of agricultural insurance premiums. As a route to facilitate finance into farming this complies with current trade rules. There are many advantages also to governments for using insurance to reduce their own budgetary uncertainty relating to disaster payments or income support. In addition, farm insurance can give farmers title to indemnity following a major loss event, unlike disaster payments that can be generally distributed without regard to specific sector or local losses, and which in some countries are vulnerable to political pressure to favour certain groups.
- *New insurance products* that are more closely designed

to meet the wide variety of farmers needs. While there are many improved variations on existing insurance products there has been a growth in interest in the more developed agricultural sectors for crop revenue products, and Index or derivative products.

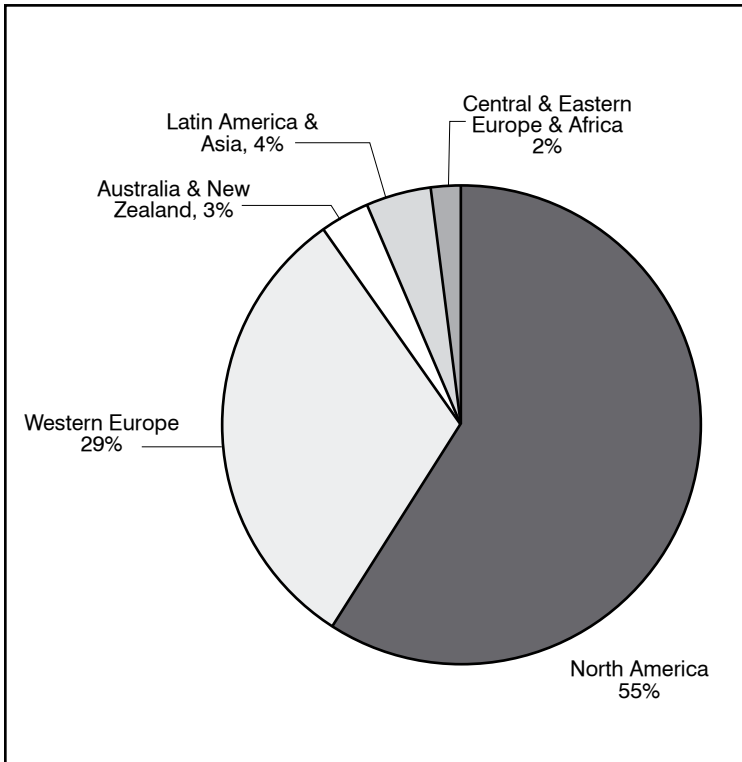
- *New environmental requirements* for land owners referred to above also lead to consideration of which natural hazards can prevent a farmer or farm group from delivering these eco-system services. This requires quite a different approach to insurance design than for single crop insurance, as the whole farm, group of farms or more likely the entire water catchment area needs to be monitored.

Global Crop Insurance Today¹

The total annual agricultural and forestry insurance premiums, worldwide, in 2001 amounted to some \$6.5bn. Of this amount 70 percent is accounted for by crop and forestry products. This sum must be compared with the estimated total farm gate value of agricultural production globally, which is \$1,400bn².

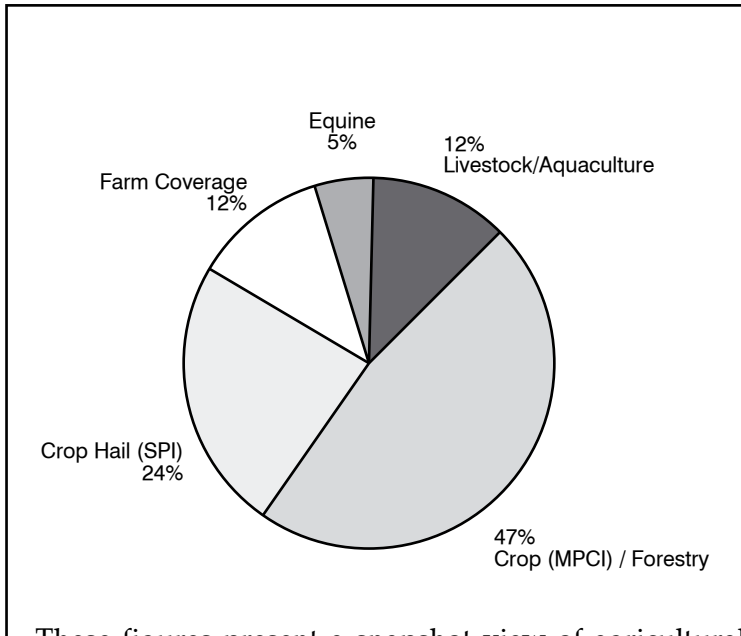
Geographically these insurance premiums are concentrated in developed farming and forestry regions, as shown below:

Figure 1 Global Distribution of Crop Insurance Premiums



The enterprise sector breakdown of this premium is shown below. The forestry sector insurance premium is included but as sub-sector will represent only about 2.5% of 'crop insurance' premiums.

Figure 2 Agricultural Insurance Premium Analysis



These figures present a snapshot view of agricultural insurance which reflects a dynamic rather than static insurance situation.

Europe and North America are clearly very well developed agricultural sectors on the whole, with a high degree of specialisation and investment. However, there are many examples of crop insurance in less developed agricultural sectors.

Crop Insurance in This Region

There are of course well developed crop insurance programmes in your immediate EU neighbours i.e. Spain and Italy that are run on a national or sector basis. However, the nearest equivalent farming environment to Malta is possibly Cyprus.³ The difference is that Cyprus has a larger potential market for insurance and there are economies of scale that may not be available in Malta.

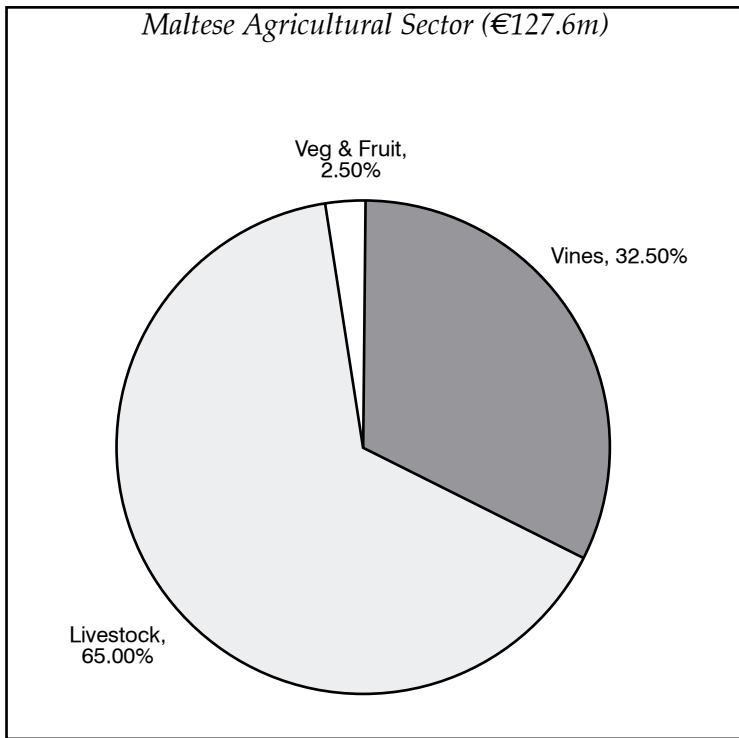
However, crop insurance is well established there since 1977 via a para-statal insurance corporation that covers cereals (drought, rust and hail), deciduous fruits (hail), grapes and citrus (frost and hail). Of the total 42,000 holdings (1983) there are about 15,000 dryland, 12,700 coastal and 6,600 vine holdings. There is demand to extend the range of risks covered, especially windstorm, excessive rain and excessive heat.

Agricultural Sector in Malta

To understand the nature of the crop insurance potential, I read that the agricultural sector in Malta accounts for about 1.8% of GDP⁴, at Lm55m (€127.6m) which incidentally, this is rather similar to the UK agricultural sector in its contribution to GDP. This production is from 12,340 full and part-time farmers (3.2% of the population) that have 87,169 registered parcels of land that may represent far fewer holdings. It is reported that cropland accounts for 9,000ha⁵.

Of the total output, 32.5% (Lm18m or €42m) is from vineyards, 65% from livestock and dairy which leaves only 2.5% of output value from crops especially vegetables, and fruit trees that use half the land area.

Figure 3: Relative Output Value from



Prerequisites for and Typical Crop Insurance Products

For crop insurance to be made available to farmers there are a number of conditions that need to exist, the first of which is to identify exactly what the farmer wishes to protect. This is known as the ‘insurable interest’. Typically this is the yield of an annual crop. For perennial crops such as vines or fruit trees, while the crop is very important, so too is the production asset – the vine or tree as in some cases this requires many years of investment to bring the tree to commercial fruit bearing age. The loss of the tree is as much a capital loss as any normal piece of production equipment.

6.1. Farmers face a number of risks to their business

Secondly there is the need to define the risk to which the crop is exposed. The farmer faces many risks in his 'open roof' production facility. Not all may be insurable:

- Natural hazards such as frost, hail, snow, windstorm, fire, drought, excessive rain, excessive heat.
- Natural Resource risk such as soil quality, especially salinity, water quality and quantity, pollution
- Market risk due to the fluctuation of prices that may reflect sector yields or product quality, itself exposed to growing conditions during the production season
- Policy and institutional risk that often determines the financial assistance give to the sector (e.g. the Maltese Horizontal Rural Development Plan of €36.6m). This is ultimately a political risk which is not insurable being determined as it is by the negotiations between parties rather than a natural independent hazard.

Generally it is possible to insure against the impact of many (not all) natural hazards. In addition, some natural hazard policies can be dressed up as a form of production guarantee which, when combined with a pre-agreed value for the production lost, could be a substitute for revenue protection assisting with market risk. However it is not the market itself that is insured and such a product will provide quite small levels of protection.

For true market risk protection, it is possible in more sophisticated agricultural market sectors where there are copious market price data, to have such a policy which may to some extent protect the grower against price fluctuations that can be measured using historical price data.

Insurable Risks

Insurance provides protection against known levels of risk

exposure, not ill defined degrees of uncertainty. In addition the risk exposure must be ultimately outside the control of the insured. For risk to be accepted by insurance companies the following conditions normally have to apply:

- *Quality of information:* Insurance of farm risks is possible if certain conditions are met. These include the need for the insurer and the farmer to have access to the same quality of information. Farmers normally always know more than the insurers about their risk and potentially this enables farmers to buy insurance coverage selectively as and when they think they need it. However, this is changing as insurers very slowly get organised with earth observation data that will probably tell them more than the farmers know about the up coming season on a regional, district or even farm crop scale.
- *Independent risks:* Risks should be independent among insured individuals so that the occurrence of a loss for one farmer does not automatically mean the occurrence of losses across all farmers. If losses are linked then this is known as a systemic peril. An example is drought losses in crops that would affect all farmers within a region. Conversely frost and fire are completely unrelated. Where risks are systemic, then special care needs to be taken by insurers even when the insured interest is quote different. Crop drought for example may also mean forest fires for a different department within the insurance company.
- *The risk profile should be able to be predicted:* Insurers can only protect farmers cost-effectively where the risks have known levels of frequency and severity. These conditions will enable insurers to calculate the probability of occurrence, potential losses and thus potential financial loss of the farmer. Insurance of perils about which there is little data is little more than gambling and farmers

certainly have the upper hand in such situations and will buy cover when they perceive that a risk is unacceptably high.

- *Specific events:* Insurance provides protection against specific defined loss events that will ‘trigger’ the policy cover. Those perils that are endemic are always affecting the farm. Disease is normally an endemic risk, while exotic disease is not – should it occur it does so starting at a specific date and place. Every crop yield will vary from year to year purely due to the difference seasonal conditions and so a small amount of crop yield variation (‘loss’) is normal. Similarly hail, windstorm and fire are all very specific loss events, often confined to easily identifiable locations or tracks.
- *Measurable losses:* Finally, losses have to be measurable so that the farmer and the insurance company can agree on the claim payable. For example hail on fruit trees will damage fruit in a distinctive way as a result of a specific hail storm, and the amount of damaged fruit can be determined with a reasonable degree of accuracy.

For environmental policies insuring carbon sequestration, water supply as in quality or amount, or ecotourism, it is often very difficult or impossible to measure a loss. This can be overcome in the case of derivative type products where an event can be pre-defined and the indemnity pre-agreed. Ecotourism for example may be perceived as being dependent for business on the quality and naturalness of the immediate environment. A significant wild fire will alter that environment and possibly deter visitors.

Crop Insurance Availability

The table below illustrates the range of perils that can and cannot be typically insured and could be available to all crops, vines and fruit trees.

Criteria for insurability

Risk/Peril	Unpredictable	Uncontrollable	Measurable	Availability of
	Unforeseeable	Unavoidable Unmanageable	Quantifiable	commercial Insurance
Climate				
Hail	✓	✓	Easy	Widespread
Frost	✓ X	✓ X	Difficult	Restricted
Excess rain	✓	✓	Generally easy	Restricted
Flood	✓ X	✓ X	Generally easy	Restricted
Drought	✓ X	✓	Difficult	Restricted
Wind	✓	✓	Generally easy	Restricted
Biological				
Insects	X	X	Generally easy	Very restricted
Disease	X	X	Difficult	Very restricted
Animal pests	X	X	Generally easy	Very restricted
Other Natural Risks				
Fire & Lighting	✓	✓	Generally easy	Widespread
Earthquake	✓	✓	Generally easy	Available
Volcano	✓	✓	Generally easy	Available
Tsunami	✓	✓	Generally easy	Available
✓ shows that the peril is compliant with the listed insurable criteria; X shows non-compliance with the listed insurable criteria				

Classic Crop Insurance Products⁶

There are two crop insurance products that account for most of the crop insurance written globally. These fall within two main types, damage-based and yield-based products respectively.

- *Damage-based Products:* An example of this is hail as a named-peril product. Hail insurance has been available

for more than 200 years. This type of policy relates to one or more specific perils (i.e. hail) and the claim is then calculated based on a measure of the actual damage which results. Other named-peril policies, such as those for frost and fire, are very similar to hail cover in essentials. The key peril features that enable this product to work efficiently are that the damage resulting from the peril is localised and there is a low degree of correlation of risk over a given area. Following a loss 'event' the eventual indemnity is based on the measurement of the percentage damage of the crop caused by the named peril(s) following inspection of the damaged crops by loss assessors.

- *Yield-based Products:* An example of this is the Multi-peril Crop Insurance (MPCI) that is operated in many countries, particularly in the USA, Canada, and Spain and almost entirely with public sector support by way of premium subsidies. This policy type has the defining characteristic that insurance is geared to a level of expected yield, rather than to the damage that is measured after a defined loss event.

As the name suggests, these policies provide cover for the damage resulting from many perils. The perils are often defined more by what is excluded in the policy than what is included. In addition they may be perils for which the individual contribution to damage is difficult or impossible to measure accurately and whose occurrence may take place over an extended period of time. Examples include drought and low temperatures.

Under this type of policy the farmer has protection against a reduction in crop yield due to any of the perils, whenever they occur. Thus it is essential to establish a farmer's yield history that provides the basis for

determining the percentage of shortfall after a loss event and to model the normal variation of yield from season to season. This normal variation is not insured. Instead it is agreed that the farmer is compensated for the difference in yield between that actually harvested and the 'insured yield' that typically is set at 50% to 70% of the farmer's average yield. This 'yield shortfall' may be determined on either an area or individual farmer basis.

It is the MPCI programmes in the world that provide most of the insurers' crop insurance income. There are thousands of policy holders, masses of yield data for lots of crops, and for insurers, setting the premium rate is more or less just an actuarial process that needs little expertise in crop insurance per se.

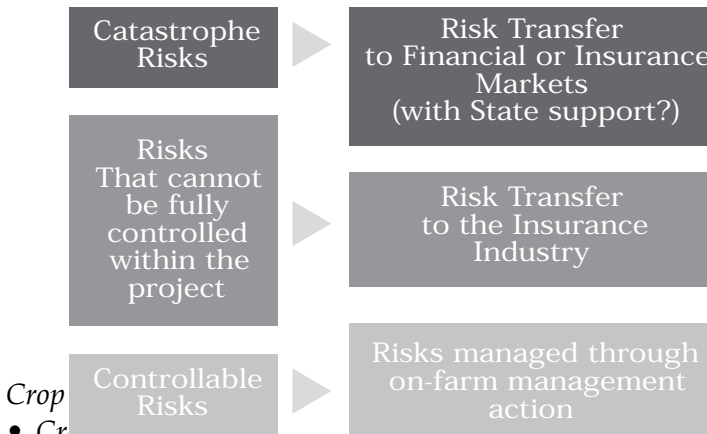
Barriers to Crop Insurance Development in Malta

Insurance can improve financial management in a business by placing limits on the downside financial risks. This also impacts on lenders to the business. Less risk increases access to finance for the farmer and may reduce finance costs.

In a perfect world, farm risks are managed as follows:

- Endemic and low-level risk is managed on the farm through careful enterprise management, good marketing and traditionally, mixed farm enterprises.
- Risks that could affect the business seriously would be insured to a local insurer. *However, unusual risks that are not understood may also be passed on to the international reinsurance markets where crop insurance expertise exists.*
- Risks that could cause the business to fail, and

catastrophic risk, are also insured locally, but the local insurer will pass-on or reinsure a significant portion of this risk to the international insurance markets.



- Crop*

• *Crops differ in their response to perils. It is clear from the above, crop insurance requires some detailed knowledge of the crop itself when affected by various perils. For example, not all trees are equally tolerant of fire. Some, such as eucalyptus will regenerate following fire. Indeed this species has evolved in a wild-fire environment. However, young teak tree or cork trees within two years of a harvest will be killed outright by a wild fire. The impact of hail or frost on developing grapes will be quite different according to the timing of the frost or hail, due to compensatory growth (or not) following the event. Hail on fruit can often be pruned out of the crop if it occurs early in the season with minimal economic loss to the farmer. This knowledge is used in designing*

the terms of the insurance policy and how the farmer is to manage the crop before and after a loss event.

- *Crop Yield Data are essential to measure risk:* Similarly, the MPCl policies demonstrated that accurate yield data is crucial to determining what level of yield can be insured. The higher the insured yield as a percentage of average yield, then the greater the probability that any peril will cause the actual yield to fall below the insured yield, and a claim will result. It is evident that poor crop yield data will mean very inaccurate risk assessments and possibly premium rates that are either too expensive for the farmer or too cheap for the insurer.
- *Peril frequency varies by location:* The frequency of the peril itself will vary by location. Crops by their nature exist in micro climates suitable for their growth. Fruit trees in southern France around Nîmes experience fewer damaging hail strikes than those further up the Rhone valley. Crops in valleys experience more frost than crops on the valley sides and so on.
- *Crop management policy affects losses:* Insurance policy terms also have to be set to fit the crop management policy of the grower. For example growing fruit for the high quality sector involves a very different management regime than growing fruit for the bulk market.. Different management practices are required so that a grower can minimise the effects of an early season loss event, and these will depend on the nature of the target fruit market.
- *Every Crop Insurance Product must be designed locally.* All these factors mean that crop insurance in the first stages requires detailed product design work, focused on identification and quantification of the risk. so that premiums can be set that are acceptable to the farmer who has his own perception of the risk to his crop.

Once the insurance product is operational, data are collected routinely by the insurer and eventually it becomes far more an actuarial process to price the product to match the risk.

Insurers Do Not Have the Technical Crop Expertise

Most insurers generate most of their business in urban settings, selling property, life and motor policies to householders and businesses. Such policies are fairly standard world wide, with perhaps national variations due to cultural or legal reasons. The rural areas are commercially of less interest, it being more expensive to sell and service insurance policies. Crops therefore present an even greater challenge, and, for all the reasons given above, can be perceived as being 'too difficult'.

For this reason a local insurer may indeed offer a crop insurance policy if it has been designed and rated by outside experts. However the underwriting committees of local insurers do not understand the business and will want to pass most of the risk (typically 80% to 90%) to a reinsurer. The reaction of international reinsurers is similar to local insurers, and only a handful will have any experience of crop underwriting.

Crop Insurance Design Expertise is Rare, and Expensive

Assuming there is a willingness by local or international reinsurers to write crop business, then it is difficult to find the required expertise to design the insurance product or to adapt the policy for local requirements. Assuming too that sufficient data exists about the target crop, then the data gathering and design function can add an up-front cost to the initiative that has to be eventually paid for by the policy holders. This may not be feasible for smaller crop markets.

Loss Assessment Skills

Crop insurance design is not just about measuring risk and severity of the insured perils, but it is also about designing the loss adjustment procedures that have to be carried out by specialist local agronomists. These vary by crop type and insured peril. There are standard procedures for the major crops and perils world wide – but companies need to know what these are, and to find individuals and companies that have the field experience to carry out loss assessment accurately and fairly. This too is an expensive process.

Not Inclined to Write Crop Insurance

Following '9/11' and the subsequent stock market collapse (that significantly reduced the reinsurers' investment income), the global reinsurance markets began to reassess their underwriting competence across all their business lines. The result was that they withdrew their capital ('capacity') from peripheral business lines in order to focus mainly on their core business, business lines that were well understood and which had a long underwriting history. It was these business lines that delivered less volatile but high value and predictable business. Niche segments such as crop, forestry and aquaculture were restricted to those accounts that could deliver high premium income.

In this manner the smaller and niche agriculture, aquaculture and forestry business has found it more and more difficult to find and hold insurance capacity.

Minimum Premium Requirements

The bigger the insurance organisation, the greater the overheads and the costs of processing insurance applications, once all the above have been attended too. A typical processing cost of an agricultural insurance application at reinsurance level will be about €6,000. This is not just book

keeping, but also includes the internal due diligence to ensure that the insurance application offers a good business opportunity. Insurers must be certain that the crop is not about to be destroyed by on-coming hurricanes, or existing drought conditions that could lead to fire losses or crop death. This requires crop insurance expertise within the insurance companies themselves.

It is for this reason than many international reinsurers require a minimum premium for their share of the crop risk of about €100,000. Insurance companies can do this by participating in national MPCCI schemes. These are commercially interesting as they typically involve large numbers of insured growers, who are well distributed across the country, and also generate a combined premium income of several million Euros.

How to Activate Maltese Crop Insurance

The Maltese agricultural sector is small and by all accounts still in the process of structural improvements, with farmers and their co-operatives adjusting their production and services to meet the needs of EU consumers that demand high quality produce, and at the same time developing a strong commercial sector as far as possible.

Taking the published figures for agricultural output as a rough guide to farmgate values, Section 4.3 stated that output of the sector was about €127.6m. Agricultural insurance premium rates vary by enterprise and by peril(s) insured but in general may exceed 1% of total values and possibly reach 8% of values for highly exposed crops. This suggests a potential premium pool at 100% participation of very approximately €1.3m, and possibly a lot more. As we have seen only 33% of this relates to crop insurance, so

we may be 'fortunate' to generate €400,000 of premiums. In reality, unless insurance is automatic for all growers, total premiums will be far less than this.

- *The Insurance Challenge:* The challenge is to identify insurance products that would be demanded and could be afforded by growers, while at the same time generating total premium volumes of interest to local and international insurers.

Two alternatives are offered here to start the debate. The first offers a conventional crop insurance range of products directed at certain sectors. The second takes a lateral view of crop risk and insurance and offers a solution that may greatly increase the potential insurance demand, while greatly reducing costs of loss adjustment and claims settlement.

The Sector Approach to Crop insurance

This takes the classic approach to crop insurance, taking one sub-sector at a time, e.g. the most important grapevine sector. Specialists are required to examine the risks, model the loss profile and their potential costs. Then the consultants need to come up with a number of policy designs that would meet the needs of the sector and generate a certain quantum of premium income for the local and for international reinsurers. Other sectors, such as top fruit production would then be analysed in a similar manner. In aggregate across a number of enterprises the premium generated may be large enough to attract commercial interest.

The cost of this work will need to be born ahead of the income flow to insurers. One thing one can be certain about is that no insurer will pay for this development work. This is because there are too many uncertainties about the final

premium flows.

What would be required is for an external agency with an interest in developing the crop sector to undertake to bear the costs as part of its sector re-structuring programme. Further to that, one may find that certain risks are so high that premiums will have to be subsidised by government to encourage growers to specialise and expand production of high quality produce. Undoubtedly the co-operatives may also have a part to play in this crop insurance development, most likely in acting as the 'agent' for insurance sales if this is not performed by the banks lending to farmers.

We do know that this approach is very probably permissible under WTO regulations.

The Coupon or Index Approach

The second approach is more innovative in that it would involve using an index to determine when a common peril has occurred. The peril would be one that affects many crop enterprises across Malta. Coupons are sold like tickets, and buyers of the coupons are then entitled to a payment when the coupon event has occurred, this being verified by pre-agreed mechanisms. Anyone can buy a coupon, not just the crop farmers. Other businesses can also be affected by the peril and they may also wish to purchase a coupon. This is attractive to insurers as it increases the total participation within the scheme.

With an index policy a meteorological measurement is used as the trigger for indemnity payments. These damaging weather events might be a certain minimum temperature for a minimum period of time; a certain amount of rainfall in a certain time period – this can be used for excess rain and also for lack of rain (drought) cover or the occurrence of a given wind speed – for hurricane insurance.

The classic insurance policy is replaced with a simple coupon. Instead of the usual policy wording, which would give the indemnity, or range of indemnity levels, on say a per hectare basis for a given crop, for losses from specific causes, the coupon merely gives a monetary sum which becomes payable on certification that the named weather event, of specified severity, has occurred. The face value of the coupon may be standard, to be triggered once the weather event has taken place for the area covered. Alternatively it could be graduated, with the value of the coupon then being proportional to the severity of the event.

If coupons were used for drought insurance there would be open sales across all business sectors in Malta which might include fishermen, tourist operators, outdoor vendors, builders etc who are just a few of the many categories making up the potential clientele for index insurance products.

With coupons there would be no loss assessment requirement, for the payments are pre-agreed. It is possible that an insurer negotiating to underwrite the coupons would require evidence of damage. In Malta this could be quickly gathered using aerial photography or satellite imagery.

There would be no need to aggregate conventional policies from different sub-sectors to ensure that critical mass of policy risk spread and premium volumes are achieved. However there is still the extension need to explain the concept to the target group that includes farmers, and to encourage sales once the concept is well understood.

There is a high level of interest in this risk management mechanism for agriculture in transition. This interest is prompted by the belief that index insurance products offer

an apparently practical solution to many of the barriers to classic crop insurance for small-scale, dispersed farmers, or, for small states with highly diversified economies - as is the case with Malta.

Conclusion

For many years, insurers and their brokers have been trying to instigate crop insurance in Malta. The problem is not one of technical crop insurance design, but one of small scale farming with small number of potential insurance buyers. The lack of critical mass has prevented any successful crop insurance development, as the start-up and operational costs (administration and loss adjustment) are out of proportion to the benefits to insurers and farmers.

This paper has proposed that conventional insurance could be instigated if outside funding can be found to pay for the crop insurance design phase, most probably coupled with some premium subsidy (or operational costs subsidy) that would enable the products to look attractive and be sold to most farmers.

Finally, we also proposed a completely new approach. The coupon was shown to eliminate many of the high administrative costs of a conventional crop insurance product. It also offers the possibility of sales beyond agriculture, so achieving the critical mass required if local and international insurers are to become involved. Of course this too needs some professional design work, but it just may be the solution to providing Maltese farmers a means to manage risk that would encourage commercial lenders and investors to enter the agricultural sector.

Notes

- 1 R.A.J. Roberts (2004) 'Insurance of Crops in Developing Countries' FAO, Rome
- 2 Economist, March 2000
- 3 R.A.J.Roberts & W.J.A.Dick 'Strategies for Crop Insurance Planning' FAO Bulletin 86 Rome 1991
- 4 Malta Fact File; Ministry for Rural Affairs and the Environment (MRAE).
- 5 Earth Trends 2003: <http://earthtrends.wri.org>
- 6 R.A.J. Roberts (2004) 'Insurance of Crops in Developing Countries' FAO, Rome

INSURANCE OF CROPS, A FRESH LOOK*

Natural disasters hit hard. They may cause heavy losses to farmers and forest owners. Insurance can assist in managing these losses, and crop insurance is that branch of this financial mechanism that is especially geared to covering losses from adverse weather and similar events beyond the control of growers.

First, and basic to the understanding of insurance, is the reality that insurance does not and cannot obliterate risk. It spreads risk. There are two dimensions to this spread. The first dimension is the spread across an industry or an economy, extended in the case of international reinsurance to the international sphere. The second dimension of spread is through time. Most insurance programmes operate on both dimensions. The important fact to note is that insurance does not directly increase a grower's income. It merely helps manage risks to this income.

Second, insurance is a business. An insurance indemnity only becomes payable in the event of a claim under a policy. The policy must be in force, with premium paid, by the time of the loss event. Most policies incorporate an element of risk sharing, by means of a deductible (also known as an

Based on a publication prepared by R.A.J. Roberts for the Food and Agriculture Organization of the United Nations (FAO) Rome, September, 2004

'excess'). This amount is the percentage of the loss which is borne entirely by the insured.

Third, premiums must cover several areas of cost in addition to meeting the cost of paying indemnities under policies in force.

Crop insurance programmes must succeed in laying the foundation for a sustainable risk management service. Most of those programmes that have not proved durable were set up on the basis of unrealistic expectations.

The Business of Insurance

In any business arrangement, both sides of the transaction must expect to benefit. Crop insurance transactions are no different. This defines the first boundary: crop insurance is sold and bought in a market. The purchasers must perceive that the premiums and expected benefits offer value; the sellers must see opportunity for a positive actuarial outcome, over time, and profit.

Crop insurance is not the universal solution to the risk and uncertainties which are part and parcel of farming. Rather insurance can address part of the losses resulting from some perils. The second boundary then is, insurance has a limited role in risk management in farming.

The third boundary is that any limitations to the scope for effective and economic crop insurance, though real at any given moment, can change over time. Farming enterprises and systems are dynamic. They change over time, and in so doing present different patterns of risk and new ways by which farming technology, and farm management techniques, can cope with production and other risks. The design of insurance solutions is an equally dynamic field of research and development. New

techniques of ascertaining that loss-causing perils have occurred, together with more efficient and economical methods for measuring losses, mean that new types of insurance products can be developed. When companies see a business opportunity here, with an evident demand, then these products will be refined, funded and marketed.

Crop Insurance Today – the Global Picture

The total annual agricultural and forestry insurance premiums, worldwide, in 2001 amounted to some \$6.5bn. Of this amount 70 percent is accounted for by crop and forestry products. This sum must be compared with the estimated total farm gate value of agricultural production globally, which is \$1,400bn. In this case the insurance premiums paid represent just 0.4 percent of this total.

Geographically these insurance premiums are concentrated in developed farming and forestry regions, i.e. in North America (55 percent), Western Europe (29 percent), Australia and New Zealand (3 percent). Latin America and Asia account for 4 percent each, Central/Eastern Europe 3 percent and Africa just 2 percent.

These figures present a snapshot view of agricultural and crop insurance. A dynamic rather than static view indicates a changing situation. Agricultural insurance is a growth business area. This growth is driven not only by the increasing commercialism of agriculture and the availability of new types of insurance products, but also by international trade policy developments.

It is clear from the above figures that crop insurance is primarily a business which involves developed country farmers. However, some 13 percent of global premiums

are paid in the developing world.

Growth in Demand for Crop Insurance Products

The expected growth in demand has its origins in changes in the farming sector. Powerful influences can be summarized as follows:

- Evidence is accumulating of connections between climate change, and the increasing incidence of crop damaging weather events of extreme severity.
- Farming is becoming steadily more commercialised, with greater levels of financial investment. Farmer/ investors and their banks will frequently examine the feasibility of using a financial mechanism i.e. insurance, in order to address part of the risk to their financial investment. As a part of this trend to commercialisation greater use is now being made of contract farming arrangements, where insurance is one of many services provided, along with inputs, to growers. In summary, there is a trend to formalise risk management in farming, with insurance being one obvious mechanism which can be harnessed for this task.
- The World Trade Organization (WTO) regulations generally forbid governments from subsidising agriculture directly; however, they permit the subsidisation of agricultural insurance premiums. For those countries wanting and able to effect transfer payments into their farming sectors, insurance provides a convenient channel for doing so. In the face of this WTO regulation, it is clear that demand for crop insurance will increase in those economies that wish to implement a policy of permitted subsidisation of

their farmers.

- The dynamism of the farming sector, and its environment, is reflected in developments in the design of new insurance products. In the last decade two types of new products have been introduced. In some cases these have partially displaced existing covers; in others they have resulted in demand from new clients. The products are firstly, Crop Revenue products, secondly, Index or Derivative products.
- Accidental introduction of exotic pests/diseases is something which concerns all countries where agriculture is an important part of the economy. Insurance can address the risk of a breakdown of these measures.
- Insurance can also assist in managing the on-farm production risks consequent to changes in pest management practices. Such changes are increasingly required in order to address environmental protection and food safety concerns.

Many of these apparently diverse influences have a major common theme. This is that any insurance arrangement will involve not only the farmer and the insurer, but also important third parties. Consideration is now given to these changes to the business of farming, and to how they have increased demand for crop insurance, or might be expected to do so in the future.

The classic crop insurance products account for by far the bulk of all crop insurance written globally. There are two main types, damage-based and yield-based products respectively. Damage based policies are based on a measure of the actual damage which results, whilst yield-based insurance is geared to a level of expected yield, rather than to the damage that is measured after a defined

loss event.

Two fairly new products warrant brief descriptions. These are (i) products based on insuring a level of crop revenue, and (ii) products where insurable damage is determined on the basis of an index derived from data external to the insured farm itself.

Crop-Revenue Insurance Products

The essence of this product is to combine production and price risk, the combination of production and price being the determinants of gross revenue from a given crop. Under normal supply/demand conditions a production shortfall might be expected to result in a rise in price. To some extent such a rise will cancel out the financial loss for the grower who suffers a production shortfall. But this will only be the case if he harvests sufficient crop and sells it at sufficient premium over the expected price. Crop-revenue insurance is designed to meet any remaining shortfall in revenue from crop sales. Frequently, too, crop-revenue products involve the determination of loss on an area basis, introducing important economies in the loss assessment process.

At present crop-revenue products are marketed mainly in North America, where they first became available to all corn and soybean growers in Iowa and Nebraska in 1996. Here their use is facilitated by commodity markets being highly developed and by related information being reliable and readily available. In this connection it is important that the price element of the policy be market based, that is, on futures prices for the coming season. The alternative, to use some sort of target price, could lead to a distortion of supply. Furthermore, it is unlikely that a crop revenue

product based on a target (i.e. non-market price) would find underwriting support.

Crop-revenue products have now spread beyond North America. The extent to which they could apply to developing countries will depend on the development of local crop futures markets, as well as on the availability of the necessary local expertise. However, these changes are really only a matter of time. Given the advantages to the grower and to the insurer, this type of insurance product is likely to grow in importance, though for smaller crop areas, as with yield assurance, it will always suffer from the problem of high administrative cost per unit of value.

The crop revenue approach follows from a new trend in agricultural insurance. This is to define the insurable interest as an income stream rather than as the intrinsic value (or expected value) of the biological item at risk. This redefinition leads readily to a consideration of farm loan and insurance linkages, since the servicing of interest and principal payments on an agricultural loan depend on the income stream produced. As already noted, some crop insurance programmes have been administratively arranged so that the insurance element is made a part of the loan, with the bank being the first recipient of any indemnity paid by the insurer, while the premium is a working capital item that is packaged with the loan itself.

A more recent development is that some banks are believed to be interested in direct coverage of portions of their loan portfolios, more particularly for catastrophic losses following a systemic peril.

Index-based Insurance Products

In a classic crop insurance policy, evidence of damage to the actual crop on the farm, or in the area of the farm, is needed before an indemnity is paid. But verifying that such damage has occurred is expensive, and making an accurate measurement of the loss on each individual insured farm is even more costly.

An index (also known as 'coupon') policy operates differently. With an index policy a meteorological measurement is used as the trigger for indemnity payments. These damaging weather events might be:

- a certain minimum temperature for a minimum period of time
- a certain amount of rainfall in a certain time period – this can be used for excess rain and also for lack of rain (drought) cover
- attainment of a certain wind speed – for hurricane insurance

The classic insurance policy is replaced with a simple coupon. Instead of the usual policy wording, which would give the indemnity, or range of indemnity levels, on say a per hectare basis for a given crop, for losses from specific causes, the coupon merely gives a monetary sum which becomes payable on certification that the named weather event, of specified severity, has occurred. The face value of the coupon may be standard, to be triggered once the weather event has taken place for the area covered. Alternatively it could be graduated, with the value of the coupon then being proportional to the severity of the event.

Clearly this type of trigger operates over an area, encompassing many insured farms. Again, a trigger such

as this cannot be used for certain perils, such as hail, where the adverse event normally impacts on a very limited area of land. On the other hand, it is suited to weather perils which impact over a wide area, for example drought.

Since there is no direct connection between a farming operation and the coupon, even those without crops at risk could theoretically purchase risk cover of this type. This is not a disadvantage. On the contrary, there are many persons besides farmers who stand to suffer financial losses from adverse weather events. Fishermen, tourist operators, outdoor vendors are among the many categories making up the potential clientele for index insurance products.

Index-based crop insurance is a very new product. It has only started recently in a small way in a few parts of the developed world and it is still too early to be able to report much useful experience.

Despite the paucity of experience with index insurance, there is a high level of interest in both development and insurance circles in this risk management mechanism for developing countries. This interest is prompted by the belief that index insurance products offer an apparently practical solution to many of the barriers to classic crop insurance for small-scale, dispersed farmers in less developed areas of the world. These barriers include:

- adverse selection – only those farmers more at risk will buy cover
- moral hazard – the insured farmer may not do everything possible to avoid or minimise a loss
- transactions costs – the huge costs of marketing individual insurance policies, coupled with the administrative costs involved in calculating and collecting individual premiums and paying claims
- loss assessment expenses – if loss assessment is done on an individual farm basis the costs can be very large

in comparison to the premium paid.

Steps in the Development Process, Decision and Action Steps

Any decision-making process on crop insurance involves many stages. These stages and certainly the priorities will differ, depending on which type of body is doing the investigation. This may be a government ministry, a farmers' organization, an insurer, a bank or a group of marketing/processing agencies. In any case, some of the more important issues and steps are:

- Demand assessment – ensuring that any initiatives are in response to real risk management needs
- Identification of the key insured parties; automatic or voluntary cover?
- Determination of key perils – a key factor in insurance design
- Decision on crops to be covered – another key factor in insurance design
- Analysis of insurance options, administrative models and loss assessment procedures, together with determination of associated costs
- Rating – determining the pure premium required, plus administrative and loss adjustment overheads to derive the initial premium level to be charged
- Identifying possible complementary roles for the government and for the private sector

In any given situation the results of investigating these issues will determine whether or not crop insurance is the most efficient and effective mechanism to manage a particular area of risk. The results will also indicate the

type of insurance product which is optimum for a given situation.

As with most assets or production processes, virtually any crop can be insured, against virtually any peril, but only at a price. At the time of writing, with squeezed profit margins on the production of many crop commodities, a paradoxical situation arises. The tight margins highlight the need for risk management, including insurance, but also reduce the ability of growers to buy the desired level of protection.

Insurance Administration

The management of insurance, as a business, has several stages. These are: market identification; product development, marketing, setting indemnity and premium levels, collecting premiums, handling claims. The overriding aim in the design of administrative structures and procedures is to lay a foundation for minimising costs. Since the potential clientele comprises small and often widely dispersed growers, costs can easily escalate to the point of non-viability of the business, unless special care is taken. In this connection, the new insurance products, mentioned earlier, offer much scope for drastically lowering the costs of administering a financial risk management mechanism.

The extent of involvement of the public sector varies from country to country, but it always has a role, even if this is exercised in the main through setting supportive and regulatory policies. It may be particularly important in the early stages of developing crop insurance, and in situations where financial support is considered both desirable and possible.

Market identification

Buying insurance involves increasing the up-front costs for a grower. The advantages of buying cover must be clear, with careful positioning of any proposed insurance product. Firstly, this means recognising that insurance as such may not have a legitimate role in a particular industry for the major perils, as seen by the owners. Secondly, where there is believed to be a role, it means that careful attention must be paid to benefit/cost considerations for both contracting parties – the insured and the insurer. These two conditions can best be met by identifying the real points of financial risk in an enterprise type, and examining whether a financial risk-sharing mechanism can be economically applied. In general, the more commercial the operation, the more likely is it that insurance could be designed to address certain of the risks involved. This applies, in particular, to the intended market for the produce of the grower. A formal, commercial market implies the ability to collect information on quantities of production from particular growers. Time series data of this type, since they are based on transactions involving payment, is likely to be highly accurate. A market outlet may also facilitate administrative economies in arranging the cover, or even in paying premiums.

Product development

Once the administrative business structure is in place,

attention must be given to developing a product or line of products to meet the already identified demand. It is at the stage of product development that it is necessary to identify the point at which insurance could most economically impact on and contribute to growers' risk management strategies.

Whereas each industry will have its own special features, problems and opportunities, one general point can be made. Product development is a highly skilled task, requiring both detailed knowledge of farming and/or forestry, coupled with a sound appreciation of the principles and operational imperatives of insurance. As such, this can be an expensive stage in the process, and one with which international agencies can often assist. This assistance might be in the form of direct partnership in product design, or training existing insurance staff to handle the new challenges. In practice it is likely to start with both approaches. What is important to note is that the design of insurance products, like the design of products for other financial services, is an ongoing task.

Marketing

Implicit in any moves to start crop insurance is the assumption that there is a demand for the product. Whereas automatic insurance has many advantages, as noted earlier, it is not always possible to design this type of policy. Marketing therefore is important. Several factors are important here:

- Close links with the representatives of farmers and foresters, and speedy response to new needs for insurance.

- Similar linkages with banks, farm product buyers and others with business connections with insured growers. For instance, the possibility of insurance being rolled into a seasonal cropping loan. In this type of arrangement the marketing is automatic, at very low cost.
- Attention to appropriate publicity.
- Scrupulous fairness in loss assessment and claims handling.
- Speedy payment of claims.

Setting indemnity and premium levels: deductibles

In standard, traditional insurance, the basic issue to be addressed is whether the insurance is meant to substitute for farm income in the event of a loss event, or whether the indemnity would merely cover the cost of inputs lost, because of crop damage. The second option is certainly the easier and lower cost alternative, as the level of overall coverage would be significantly less.

With index policies the choice would be more flexible, since an insured individual could choose the level of coverage, purchasing the number of units which suits his or her needs.

In any case, it is vital that an actuarial balance is struck between premium and indemnity levels, and that this balance be continually checked in order to ensure the financial sustainability of the programme, and its ability to meet commitments to insured growers. A key issue is the level of deductible (excess) which applies. The effect is twofold. Firstly, and more obviously it impacts directly on the premium level through an inverse relationship between the quantum of deductible and the pure premium required

for a given level of insurance protection. Secondly, it also impacts through economies in loss assessment and adjustment costs, a deductible means that minor losses will not prompt a claim, and therefore no loss assessment will take place.

A major area of difficulty in setting indemnity and premium levels is the lack of data linking the incidence of adverse weather events and actual losses in the field. Experience has shown that historic newspaper reports are unreliable (they usually exaggerate the losses) and that reports kept by government ministries are similarly inaccurate, since in the absence of insurance there is little incentive, or need, for precision.

In any case, insurance products in agriculture are seldom launched on the basis of all the data an actuary would wish to have in order to set premiums at the level required to meet expected indemnity liabilities. Experience must be gained during the early years of a programme. During this period adjustments can be made to the indemnity and premium levels, and also to the percentage of deductible applied.

Collecting premiums

The main objective here is to keep costs as low as possible, so there is a strong incentive to build linkages with existing providers of services to the farm and forestry sector. Perhaps the most obvious linkage is between the insurer and banks serving the same clientele, with the loan included as a component of the seasonal cropping expenses. Since the premiums in such cases are paid in bulk by the banks to the insurer, costs are minimized.

Handling claims

Again, cost containment is very much an objective in designing procedures for the notification of claims, for assessing the losses and for paying indemnities. Clearly the big divide is between the older, traditional type of policy, in which losses need to be assessed on each farm or forest, and the newer types of policies in which a more wholesale approach is possible.

A further potent field for cost economies is through building linkages with entities already providing services to growers. These include banks, input suppliers, processors and other buyers. Sometimes, when loss assessment is done on an individual basis, the process can be made more efficient by the ready availability of detailed information.

Roles for Government and the Private Sector

Whereas, as a business, insurance belongs in a business setting, the very nature of crop and forestry insurance means that there is bound to be strong governmental involvement. Most governments have a close interest in risk management in agriculture, both for productivity reasons, and concern for the wellbeing of rural populations. This often means, in practice, that governments are active not only in an overall policy sense, but can be more intimately involved in various ways. These can range from initial investigation of the feasibility of introducing crop and/or forestry insurance products, leading to eventual promotion, and even financial participation.

At the same time, and as stated above, there are

strong reasons for the business operations in insurance to be handled by a commercial concern, for reasons of efficiency and convenience in terms of insurance operations complementing other commercially-run services to farming.

This dual parentage of crop insurance can lead to tensions. The most crucial areas of concern lie in the areas of premium setting and claims handling. In these areas experience has shown that undue and inappropriate political influence on an insurer can be very damaging.

Accordingly, much attention is given during the design of crop insurance programmes to avoiding these tensions to the extent possible. Such avoidance is aimed at optimising the role of the public sector, while harnessing the drive and efficiency of the private industry sector.

Several steps are involved. One listing might suggest the following as important:

- Ensure that any existing company or new entity has a sound legal basis on which to offer insurance products, with the required level of business competence.
- Clarify the government's objective in promoting crop insurance. Is it purely an additional risk management mechanism, or is it also an avenue of subsidy to the farming sector? If the latter is the case, then the avenue for financial support has to be ring-fenced from day-to-day political interference. This is not easily done, yet it is essential if there is to be the required continuity of financial conditions in order to build efficiency and fairness into the system.
- Establish strong linkages, at an early stage, with international re-insurers. These companies can assist not only with technical advice, but can also be instrumental in ensuring the necessary adherence to correct application of premium setting procedures,

and settlement of claims. Although the opportunity for profit may be some years away, such companies are often prepared to become involved in a new geographical field of business. They operate with long term time horizons, and this can work very much to the benefit of a nascent crop insurer – whether this is a new company or a new section within an established company.

- The financial base for the insurer must be adequate. This must be sufficient to survive initial years in which weather conditions might be such that underwriting profits are sharply negative. On top of this loss, administrative expenses have to be met.
- Work closely with representatives of the farming and/or forestry sectors. This will help ensure that the service and products are popular and therefore in demand.

AQUACULTURE AND
LIVESTOCK INSURANCE
CURRENT ACTIVITIES OF THE FOOD AND
AGRICULTURE ORGANISATION OF THE
UNITED NATIONS (FAO)*

Although capture fisheries insurance have received more attention over the years, the Food and Agriculture Organisation of the United Nations (FAO) is well aware of the opportunities aquaculture stock and crop insurance can offer to the sustainable development of aquaculture in both developed and developing countries. In order to address the topic in a more visible manner, the Organisation is currently embarking on a global review of the current status of aquaculture insurance. This is a study in line with other FAO reviews such as the State of World Fisheries and Aquaculture (SOFIA) and the Review of the Status of World Aquaculture (FAO Fisheries Circular No 886) which are published every few years.

The Committee on Fisheries – Sub-committee on Aquaculture (COFI-SCA) in its first two sessions emphasised the need for the FAO Fisheries Department to work on risk-assessment and management issues in aquaculture. The current study responds to this need as it will provide information on aquaculture insurance and

*Partly based on information provided by Fishery Policy and Planning Division, Fisheries Department, FAO

its very close linkages with other risk management tools for this sector.

P.A.D. Secretan, one of the foremost global authorities on aquaculture insurance, already mentioned in the early 1980s that *“there is a great deal that aquaculturists can do to reduce losses by adopting risk management practices and procedures, thereby benefiting from increased efficiency and reduced insurance premiums”*.

The rapidly increasing size of the aquaculture industry and the rapidly changing production processes in aquaculture world-wide have created a demand for insurances as one way to manage the risks involved. There is however considerable ignorance in the sector about the availability of aquaculture insurance, the process of obtaining insurance cover on especially aquaculture stock mortality, the conditions and responsibilities it places on producers and the constraints it places on the primary insurers and reinsurers. The scarce awareness and/or take-up among large parts of small- and medium-size aquaculture entrepreneurs, in particular in developing countries, of aquaculture insurance and its benefits, and the fact that the aquaculture insurance business is not very transparent at present and that therefore not much information is readily available for aquaculturists world-wide, all together suggests that the FAO review will play an important role in bringing the topic of aquaculture insurances at the centre of the discussions.

The primary intention of the review, which will result in an FAO Fisheries Department Technical Paper, is to establish the present scope and size of the primary insurance and reinsurance markets, to present the range of products the primary market has to offer to the producers and to outline the difficulties both markets face. In providing accurate information about the current status

of aquaculture insurance in the world, the review sets out to contribute to the promotion of a wider understanding of aquaculture insurance and to the development of best practices by aquaculturalists. Moreover, FAO intends with this document to increase the awareness of aquaculture producers world-wide, and particularly those in developing countries, about the opportunities that aquaculture insurance can offer to their businesses. Such opportunities include sustainability, spreading and reducing risks and hazards, increased access to credit and investment capital, stabilized income derived from aquaculture, and smoothed supply of aquaculture products to the marketplace. Other aims of the study are to inform decision makers at national government levels as well as those in international organisations/agencies about the role of aquaculture insurance in the sustainable development of the aquaculture sector and to provide aquaculture sector stakeholders with insights into what is all-too-frequently considered as a complicated type of activity.

There is a general perception that aquaculture is a high risk activity involving a risk higher than other food production industries (Pillay, 1994). While there is no industry wide, scientifically quantified and publicly available information that confirms this, the experience of the specialist insurance industry is that the risks to aquaculture crops are indeed very high.

Aquaculture, like many other sectors, works with biological processes. However, it involves risks that may differ from those in other sectors in that the products are often “cultivated” outside the aquaculturists’ direct observation. The rapidly changing production processes in aquaculture world-wide (e.g. underwater cages, sea-ranching, intensification, aquaponics, recirculation systems), which sometimes increase susceptibility to disease outbreaks

and which generally ask for large investments, have over the last decades significantly increased the demand for insurances to share and cover the risks involved. In this respect it should be noted that, although take-up among large parts of small- and medium-size aquaculture entrepreneurs is limited, the global aquaculture insurance market has increased considerably since the mid-1970s, with the premium paid by aquaculture producers having grown from around US\$ 100,000 in 1974 to an estimated value of US\$ 50 million in 2002 (AUMS, 2003).

The benefits of aquaculture stock mortality insurance to aquaculturists are many. A good policy should provide them with, among other things:

- Some “peace of mind” (Secretan, 1979),
- Protection against a variety of effects of natural hazards beyond their control, which affect their health and personal security, assets and harvests (FAO, 1999),
- Adequate compensation in the case of loss of harvests,
- More secure incomes, greater stability and social and economic welfare in the farming community,
- Improved access to seed and investment capital by reducing the risk of non-payment of credits and loans,
- Increased incentives to invest in expansion of their business and to adopt new technologies,
- Improved market supply quality, consistency and reliability,
- Increased opportunities for mutual assistance and cooperation among aquaculturists,
- Access to additional sources of information on risk management.

Moreover, Governments can benefit from aquaculture insurance as it can contribute to solving some of the problems associated with the occurrence of natural and other disasters, for which otherwise the Government would have to provide emergency assistance. Last but not least, aquaculture insurance can help to stabilise the contribution of the aquaculture sector to the national economy.

Considering the wide range of benefits it might be surprising that the use of commercial aquaculture insurance is not widespread but largely limited to the Western world. The reasons for this are various, among others:

- 1) General lack of knowledge of the operation of aquaculture insurance among primary insurers in developing countries,
- 2) Limited awareness among aquaculturists in developing countries about the benefits of insurance,
- 3) Lack of stock control and other management skills and processes that are required in order to be eligible for insurance cover,
- 4) Exclusion of small-scale aquaculturists from insurance,
- 5) Lack of well-established village institutions, such as co-operatives, to act as insurance agents,
- 6) Lack of legal frameworks for fisheries insurance; lack of related government policies,
- 7) Difficulties in promoting insurance policies, designing sustainable insurance programmes and co-ordinating the work of the agencies concerned,
- 8) Lack of staff within insurance institutions who has knowledge of the sector,
- 9) Negative experiences by reinsurers that have borne substantial losses *inter alia* from algal blooms.

FAO expects, through the review and the conclusions

that will be drawn from it, to contribute significantly to the promotion of aquaculture insurance and the development of best practices and, in a longer term perspective, also to provide guidance to the formulation of appropriate policies for aquaculture development in developing countries.

The review will, for each of the countries selected, provide an overview of the aquaculture insurance situation from the supply side (insurers' side), including information on the players, their portfolio, and insurance products offered. In doing so, it will look at the different types of insurance being offered and their coverage.

It will also provide an overview of the aquaculture insurance situation from the demand side including, to the extent possible, information on the numbers of farms insured, typical size of farms insured, typical size of farm operations in terms of investment and/or gross returns, type of insurance used, typical loss history of insured farms, estimated size of current aquaculture market (by country in US\$), and estimated size of the total aquaculture insurance market in the country (i.e. potential demand). If possible, it will also include some socio-economic and gender characteristics of the farmers that use aquaculture insurance.

The review will in addition attempt to describe the policies and regulations that support or hamper the development and implementation of aquaculture insurance, e.g. macro-economic policies that affect market entrance of foreign insurance companies, land ownership and lease laws and regulations, etc.

By definition, the review will essentially be a research-based exercise, involving data collection in the major aquaculture production regions of the world. The nature of the output will therefore be determined by the quality and quantity of information which will be obtained. Although

largely descriptive, the information is nevertheless expected to be sufficiently robust to enable FAO to come out with comprehensive recommendations relating to a wide variety of aquacultural operators as to how insurance services can be organised for their benefit. As such, the information will constitute a very useful tool for further progress in a fast-developing business, where there is still a great deal of ignorance and failure. In this connection, a quotation is apt. In a recent (2003) report prepared for the USDA, P.A.D. Secretan, wrote,

“Underwriters believe (and the evidence so far suggests they are right) that the industry (aquaculture) is more hazardous than the producers believe it to be. Herein lies a conundrum in aquaculture insurance that has yet to be resolved!”

FAO is confident that the exercise will be an important step in building a set of solutions to this conundrum.

The Agricultural Management, Marketing and Finance Service, AGSF, of FAO is in parallel and in collaboration with the Fisheries Department of the Organization, preparing an additional publication covering both Livestock and Aquaculture Insurance. This publication will, as far as Aquaculture is concerned, differ from the Fisheries Department review in that it will aim at satisfying the existing demand for a fairly brief, readable guide, primarily for government ministries (of agriculture, fisheries) rural development banks, and practitioners as to how insurance might be used to support other risk management practices in raising livestock and fish/shellfish, thus expected to complement the Fisheries’ document. Such practices include policy issues, e.g. site licensing; regulations relating to matters such as quarantine; compulsory veterinary procedures. They also include on-farm physical measures such as attention to structural maintenance of fences,

cages and housing, as well as daily monitoring for disease conditions. Risk management practices can also involve financial mechanisms such as share-farming, farming partnerships and Islamic-type borrowing where the lender shares potential profit and also potential loss. Yet another form of risk management is the forward sale of output and other types of contractual farming arrangements.

All of these risk management practices will be briefly described in order to identify the potential role for insurance. Its role will be looked at in those cases where there is no other suitable risk management technique, or because other approaches are more expensive. The guide will then cover the more usual areas of insurance such as the roles of public and private sectors, the legislative basis for this type of business, the overall design of policies, including the basis for valuation, marketing policies, methods of collecting premiums and paying indemnities, loss adjustment, and insurance product monitoring and modification.

Initially being planned as a publication on livestock insurance only, the idea of adding aquaculture was prompted by the many common issues between the two types of farming, even though aquaculture is a minnow compared with livestock. While being rather different from the range faced by crop farmers, the range of perils faced by both livestock and aquaculture enterprises is similar. Perils common to both sectors include escape/predation/robbery; storms/avalanche/flooding; malicious damage. For aquaculture, additional perils include disease; water quality (oxygen depletion/algal toxins); collision. Insurance is an item in the toolbox of risk management techniques to address the perils faced in these two industries. Because of the different peril range, insurance product design and

insurance operations are similarly distinct from those applying to crop products.

It is instructive to note the relative annual (2002) global values of livestock and aquacultural production, and insurance premiums paid; (data from various sources):

Value of livestock production	\$850bn
Value of aquacultural production	\$54bn
Ratio Livestock/ Aquaculture	15:1

Total value of insurance premiums:	
Livestock	\$1,900m
Aquaculture	\$50m
Ratio Livestock/ Aquaculture	38:1

Demand for livestock products in developing regions has risen greatly over the last two decades, a trend that is likely to continue. This demand is being met by supply increases in both developed and developing regions, with the growth rate being far faster in the latter. This has called for ever-increasing levels of investment, especially in enterprises such as poultry, which has recorded an annual production growth rate of 7.8 percent over the period 1982-94.

Demand and supply of fish has also risen substantially, with the global per capita consumption increasing 46 percent from 1970 to 2002, with particularly dramatic increases in the proportion of fish which is farmed as opposed to captured. From accounting for just 3.9 percent of total fish production in 1970, aquaculture produced nearly 30 percent in 2002. The investment in aquaculture enterprises which underpins this increase is estimated to be of the order of US\$75bn.

The publication will summarize the rise of livestock and

aquaculture demand and supply, with brief descriptions of the types of investments, together with estimates of the associated investment levels. It will then describe the perils faced, identifying the potential role of insurance, i.e. where this is the most cost-effective risk-management technique.

It will also discuss insurance product design issues, focussing on example products now in the market. This section will include the common conditions applied to insurance policies, which are designed to reduce the incidence of loss events and to minimize the losses once a loss event has been noted. Thus, a common feature of livestock and aquaculture insurance products is that the conditions attached tend to prompt higher levels of other, on-farm, risk management measures compared to those in the without-insurance situation.

Both publications are expected to be ready for distribution in mid-2005. FAO hopes and believe that they will also be of interest to and use for the Maltese aquaculture sector.

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THE MALTESE FARMERS' VIEWS AND REQUIREMENTS

Only a very small percentage of our agricultural community makes use of insurance policies. The majority of those who have an insurance policy on their investment are, in the main, livestock breeders.

This statement is based not just on my lifetime contact with the farming community, but also on the basis of the long lists of farmers, who every time abnormal weather conditions –say flash floods, severe hail storms- and large scale epidemics, cause damages to the farming community, they register their loss with Government clamouring for compensation and help. Whenever these lists of applicants requesting some form of compensation from government, are drawn up, the universal declaration that applicants make, is that they are not covered by any insurance policy.

There are various reasons for this lack of interest, amongst the farming community, in insurance cover, but I shall dwell only on technical and administrative ones as offered by farmers, growers and livestock breeders.

Land Tenure

The best economical activity in the horticultural sector , is that registered by holdings of irrigated land. However of all the irrigated land area in our islands, only 18% is owner occupied, with the rest being held on lease. Owner occupied dry farmed land totals roughly to 26.2% of the total dry-farmed areas.¹ The largest land owner is Government, more so following the recent transfer of church land to Government. Since in the main, our agricultural lands are leased on a year to year basis, this system does not encourage investment and so there are less opportunities for insurance policies. It is felt that if the government owned agricultural tenements are leased for a definite period of time – say a minimum of 15 years for dry land and 20 years for irrigated land, this will offer an opportunity for growth in investment.

Land Fragmentation

This problem is recognised by all. It impedes development and lowers investment possibilities. A system whereby this problem is at least not allowed to grow further is needed. In my opinion, this problem warrants an in-depth study, at least for government agricultural tenements, by a Government appointed committee made up of representatives of the stakeholders and of all political parties. The stake holders include the relevant government organisations [i.e. Departments of Estate Management, Agriculture, Veterinary , Joint Office, Attorney General,], MEPA and farmers' organisations. Ideally this proposed committee should produce a White Paper outlining the

proposed line of action it recommends. Bringing to halt further land fragmentation, would be an achievement and an opportunity for more investment. Investment and the insurance business work in tandem.

Advisory, Extension Service.

One of the pillars of Agricultural Development, is the Extension Service available to the agricultural community. This is the first step the Food and Agricultural Organisation [FAO] of the United Nations takes whenever it has programmes anywhere in the world .In our country the FAO built this service for the Agricultural Department, when it started its programmes in Malta in the early sixties. Unfortunately, over the years, this service has suffered a lot. "Extension service was so confused with regulatory work and with service –type activities, that the administrators were unable to draw a line of distinction between educational, regulatory and service type activities."² This statement by the Greek Extension Service Specialist Dr. Spiros Selianitis unfortunately still stands to-day.

Business plans must be drawn up by any commercial entity, including the farming one, in order to register progress. The insurance element definitely comes into play wherever there are risks. But how can farmers and growers cope if help is not at hand to enable them to better their managerial and technical skills?

The best and most practical way of educating our farmer, in my opinion, is through the use of the "out of school" education system. There are very rare occasions where an established full time farmer sends his son / daughter to train at tertiary education level, in a branch of agricultural education pertinent to his farming business. In the majority

of cases, especially in the livestock sector, the son/ daughter willing to carry on the family business, leave school after obtaining lower secondary level education, to learn the business 'on the job'. Hence the need for 'out of school' education, which can only be delivered by an efficient, dedicated, professional team which must spend most of its time in the field.

Apart from personal contacts and organising farmers' meetings, the extension officer is expected to make full use of modern tools for disseminating technical information – from videos to computer programmes – from radio to television programmes. The man in the street now is realizing that farmers do not just produce food but also act as caretakers for our natural environment and landscape. All developed countries accept this fact. A cursory look at the Sunday TV programmes screened by most stations, indicates regular features dedicated to the farming and the agro-industry sectors. Our agricultural community is thirsting for this "out door" educational tool. These tools help the investor, the insurer and the consumer to make 'informed' decisions.

Management and technical skills are best taught on the job by the extension team. Trials and demonstrations on both Government stations and on private holdings, have always been advocated by FAO since its inception. Good training helps the farmer and grower to manage well their holdings. A thriving business is an opportunity the insurance sector never misses.

The 'In school education' system is also important, although not at the same level of the 'out of School' system. In our country the teaching at an elementary level of the principles of agriculture and of horticulture started being taught in a trade school environment after World War II. Prior to that, there was an apprenticeship

scheme initially started off by Profs. John Borg in the early 20th century,³ mainly for gardeners and later extended to animal husbandry. In 1979 the agricultural trade school at Ghammieri was converted into an Agricultural Training Centre [ATC] having the Department of Agriculture sharing with the Education department not only the organizational responsibility but also the teaching requirements in both theory and practice. Gozo started to have its own first centre in 1979 at Xewkija, through my deep involvement in this venture.

With the setting up of the Institute of Agriculture by the University of Malta⁴ in October 1993. and recently with the establishment of the Malta College of Science and Technology, the in school agricultural education system ventured into the tertiary education level. This is an achievement for our country and for the farming sector as a whole. However are there any of our promising farmers following these courses and planning to go back in the private agricultural business? The past has shown that successful graduates, some of whom were already employees of government entities, took up jobs with government agencies and in the agro-industry. This fact gives more weight to the necessity of an active 'out-of-school' education initiatives. Our country cannot follow Egypt's example of reserving one third of its newly reclaimed agricultural land for graduates!⁵

Producer Organizations.

With 58.4 % of our agricultural holdings consisting less than 1 hectare each,, and the farming community consisting of 1524 full timers and 12,589 part-timers, how can one expect to meet the efficiency and the high production levels

of large farms / holdings/ conglomerates in neighbouring countries? The answer, in my opinion lies in unity. Our farming community must unite to enable it to cope better with market demands. Unity makes management more efficient and essential for skill improvement. This could only be achieved by the setting up of Producer Organisation.⁶

In a way, this is nothing new as the various co-operatives, especially in the livestock sector, clearly prove the point. Producers need to organise themselves. They need to engage professional managers and specialists. This can only be done through a Producer Organisation Such an organisation can plan production programmes, after carrying out market surveys. Only such an organisation can afford to engage specialists to serve the producers, and/ or to formulate policies, or to obtain financial support from both the government and the European Union.⁷ Moreover, through producer organisations and with the support of the government extension service, production levels can be raised. Product planning for specific contracts can only be formulated through such an organization. Better use of our irrigation water resources could be registered thus avoiding the dangers of over extraction of our ground water⁸ with its inherent problems.

On the social side, such organisations are in a better position to deal with insurance policies, to negotiate acceptable premiums, not only for the business part but also for the health and life assurance cover of its members.

Such organisations can afford, and are capable to conduct market research and to take part in both local and foreign, specialized agricultural fairs. The setting up of co-operatives was a step in the right direction since these have shown, especially in the livestock sector, how members can benefit in various ways, including obtaining

insurance cover.⁹

The Gozitan farmer, already at a disadvantage with his Maltese counterpart, has understood this principle, because a Gozo Producer Organisation has just been set up. It is in the process of taking over from Government the Gozo Grading Station and Cold Store. It is understood that this organisation is already benefiting from EU funds.

How then, to date, in Malta the farmers and their associations have not managed yet to organize themselves? Is it because of pique, parochialism, ignorance, the resistance to change or selfishness? Or is it because of excessive bureaucracy or lack of support from the Authorities or lack of a legal framework? Or a combination of both blocks, namely the Farmers' and Governments'? Why are the two government Grading Stations and Cold stores at the Ta' Qali Marketing Complex built purposely for Producer Organisations, still waiting to be claimed by such an Organisation? If a way has been found for the Gozitans to organise themselves, surely this could be emulated by their Maltese counterparts. Do farmers realize that importers of fresh fruit and vegetables have already organised themselves on their own steam and that sea transport to mainland Europe is getting more efficient now? Experts, both local and expatriates have mentioned 'ad nauseam' the difficulty in better organising the farming community. A number of livestock co-operatives as well as the viticulture industry have shown the way to be organised. Another example is the potato export sector which is somewhat organised. Why then Maltese farmers and growers find it so difficult to form a Producer Organisation for their horticultural produce without further delay?

Niche Markets

Various FAO report on Maltese agriculture, have stressed the point that we should try to target niche markets, including out of season crops. During the last 17 years the number of greenhouse units shot up from 275 to 1027 covering an area of 511,677m².¹ This shows that this sector saw a future in protected cropping. Our climatic conditions, coupled with modern technology, gives us the edge over our southern European neighbours.¹⁰ Therefore the Malta Environment and Planning Authority [MEPA] should take this into consideration in the current public consultation process for the revised Supplementary Planning Guidance on Agricultural Buildings, Farm Diversification and Stables.

The expansion of the protected cropping sector is, in my opinion, essential. Hence areas suitable for this expansion should be planned for. An ideal opportunity exists in the present drive to reclaim spent quarries and diverting them for agricultural production. But I feel that MEPA should give priority to have these reclaimed quarries earmarked for protected cropping. There are already a few enterprising individuals who are operating in this way, but there is scope for much more units now. Not only the greenhouse structures do not jar in the landscape in such a location, but there also exists a potential for making savings on the construction of the essential water reservoirs.

Upgrading and Sanctioning of Farms.

Once I have drawn MEPA in the equation, I must also offer another suggestion regarding the livestock sector. MEPA and the relevant authorities have accurate information of those farms which need upgrading to conform with

regulations or else face closure. These farms have to be informed and the position explained to them and to their organisations. Steps to upgrade and also to sanction existing units must be taken for every farm. However there is scope for better management of resources for the common good as well as for efficiency's sake. For instance, farms needing upgrading or sanctioning and which are physically grouped in an area, each of them is asked to conduct an Environment Impact Assessment. Since such an assessment is common to all farms, why shouldn't it be easier, and cheaper, to hold one assessment to cover all the farms together? Why cannot we work towards finding a solution to treat, for instance the manure clump problem of a group of units together, rather than expecting each unit to build its own manure shed? Such a train of thought will not only speed up the sanctioning process but also lowers the expenses of the livestock breeder. In my opinion MEPA has the capacity to help farmers organise themselves in this respect.

Organic Farming

A certain level of organic farming to meet local demands of new consumer taste for such grown fresh vegetables and fruit needs the support of a Producer Organisation. It needs also the introduction of voluntary grading of all local produce marketed at the Ta' Qali Markets and elsewhere, whether organically grown or not. Extensive trials of suitable crop varieties, of fertilizer regimes, of growing techniques, of pest and disease control carried out at the government station as well as on private holdings are essential. These initiatives will not only produce first hand technical information essential for extension work

but also help the grower overcome teething technical problems. In this novel sector the Producer Organisation is of the utmost importance since a grower can hardly be expected to bear out on his own the effects of lower yields, of produce grading and of engaging experts.

Irrigation water

The problem facing our water resources has been amply highlighted in the APS 2001 seminar.⁸ Way back in 1978, Italian experts¹¹ had already recommended the metering of private bore holes, not for fiscal purposes, but for monitoring and controlling water extraction. It has now been officially admitted that, since then, the situation worsened because of the illegal boreholes which have been drilled practically all over both islands.¹² Over extraction means gains in the short term but disaster in the, not so far, long term. Moreover how can a grower expect that an insurance cover be obtained if one is relying on an illegal borehole?

The importance of treated sewage water has been identified by FAO and criteria for its use issued in its 1985 and in 1992 reports.¹³ Even making use of tertiary treatment techniques coupled with disinfection procedures, the necessity is felt to monitor and to educate the grower. Degradation of the local agricultural produce penalises the country's economy. On the other hand this source of irrigation water enables the farmer to reach target yields without having to resort to illegal over extraction of water from the aquifer.

Global Climatic Change

The Mediterranean agricultural systems, facing important challenges such as a growing demand for agricultural products, loss of competitiveness within the context of world – wide markets, are especially vulnerable to climatic change. Both rain fed systems as well as irrigation ones in large countries like India, USA and Brazil are already registering a negative impact on agricultural activity due to global climatic change.⁵ Hence policies and strategies to predict and to adapt to climatic change and the challenges they offer, including to the insurance sector, must be formulated.

Other Reasons

From a number of personal enquiries I have made, it resulted that livestock breeders, who in the main are organized in an organisation or are registered as a company, carry an insurance policy. Greenhouse growers, especially those who have invested heavily in equipment, eg Green houses, automated irrigation systems, heavy machinery, reverse osmosis plant etc. and, again, especially those who are registered as a company, also carry an insurance cover but mostly on their equipment, structures and machinery but never on crops. A few, especially the Garden Centre sector, have a public liability cover also. However several farmers are not conscious enough of the possibility and the advantages of insurance cover for their equipment, and those who are insurance minded do not feel they should increase their running costs. This is also due, in my opinion, to the lack of initiative on the part of insurance brokers to explain the benefits of an insurance policy . Are insurance brokers ready to go into a new field of risk cover ? Unfortunately the tendency has been to look at the

Government as a substitute for Insurance especially if an election is looming ahead!

Crop insurance in Spain and in Greece is available through a few specialized international Brokers because there they deal with substantial investment and similarly their premiums make an economic proposal.. Hence I think that this matter is best dealt with producer organisations, backed by the Authorities, to ensure that insurance brokers do not shun this sector for more lucrative business.

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FISHERMEN'S VIEWS ON INSURANCE IN THE FISHING INDUSTRY

Mr. Chairman, distinguished guests, ladies and gentlemen. It is my pleasure to be here with you today for this seminar.

I would like to start by thanking Professor Lino Delia, Chairman of APS Bank and Mr. Joseph Galea, Marketing Coordinator at Bank, who asked me to give this talk about the Fisheries Sector in Malta and Insurance.

I am Secretary of the National Fishing co-operative that represents 95 % of the commercial fishermen. I would like to take this opportunity to express the concerns that are preoccupying Maltese fishermen today.

Our Maltese fisheries, like most Mediterranean fisheries, are directed at a great number of different kinds of fish, but the main targeted species are Lampuki (*Coryphera hippuris*), Blue fin tuna (*Thunnus thymus*), and Swordfish (*Xiphas gladius*). The value of these three fisheries together amounts to around three fourths of the total landings in Malta and Gozo.

It was almost a year to date that Malta became a member of the European Union. In theory there is a bigger consumer market to share, but there is also aggressive competition from other European fishermen. One of the main problems

that our fishermen are facing is exactly what this seminar is about to address, that is the issue of insurance.

When Malta became a full member of the European Union, fishermen started facing new problems one of which, for example, is the liberalization of the commission for the first sale of fish. Our fishermen are still confronted with half-a-century old laws that do not apply anymore for the twenty first century. And, above all, these laws are not even compatible with European Union regulations.

As fishermen, we were looking forward, that from the first day that Malta joined the EU, certain laws that were more hindering than being helpful to the Maltese fishing community would be abolished. Either by our government or following insistence from the European Union. But until now, the famous ostrich with its head in the sand approach has been applied by both local authorities and EU institutions.

Apart from insurance, but related to it, Maltese fishermen feel let down by local bureaucracy. Two examples suffice to illustrate this shortcoming. One refers to the timely issuing of building permits, the other to the formation of fishermen's Producers' Organisations.

Structure Funds

Now that Malta is a full member of the European Union, the fisheries sector is able to benefit from several support programmes, such as those encouraging the modernisation of the existing fishing fleet and a much needed improvement of our fishing port facilities. But it is neither gale force winds nor high swells that are the stumbling blocks that might make us lose out structural funds, resources that are needed to help the fishermen work more efficiently

and safer. It is a legal monster with the name of MEPA (Malta Environment Planning Authority) that is the real stumbling block.

A project valued at 3 Million Euros, for a hard standing and modernized main fishing port, has to be ready and inspected by the European Union by December 2006! MEPA officials do not seem to care that Maltese fishermen have to go to neighbouring countries for a dry standing. Nor is MEPA bothered by the time frame set by the EU. It is quite acceptable for MEPA that the fishing sector is going to lose out on a 3 million euro project, and all because of a late green light, if there will ever be one!

I have been working now for twenty four years as a fisherman, and I have never experienced such gross neglect on the side of a government authority. The local fishing sector was working so hard for this project, for so many years, and now that we had a "huge" helping hand (EU) we are being let down by our very own people. The project's viability is critical for its success. It is now or never!

Producers' Organisation

Again, a few years ago our government was promoting the need of Producers' Organisations. We are not complaining about the aid to the PO's plans to improve quality, but we cannot even apply for the financial support for the start-up of PO's. Although the regulations of the various producers regulations were published on January 6, 2003, the regulations for fishing and aquaculture products had been discussed at fishing board level only. They had not been published, yet!

How much AID can we afford to lose!

A lack of seriousness and too much bureaucracy in

our government departments are a constant threat to innovation. They stall initiative.

Insurance

Contrary to our European counterparts, our Maltese fishermen are still facing day to day risks.

The reason is that our government did not fulfill its commitments and obligations that were promised to us on April 5, 2003. It was then agreed that every commercial fisherman and every commercial fishing boat will be insured as early as January 2004. Although so many local and foreign bodies were interested to invest with the government and with our co-operative, the government is still contemplating what to do. They have simply nothing serious to offer. No measures were introduced to ease the daily hardship that our dedicated fishermen are going through. You can imagine, that this is having a very negative impact on the entire fishing industry. I am appealing to the government to take action, before it is too late.

Dear guests, the requirements of the Maltese fishing sector that I mentioned are just a few of the most urgent topics that our fleet needs to compete with our European and North African counterparts. One cannot talk about insuring the few in vacuum.

For now, I want to remind the government about the assistance that our fishing fleet could benefit from: eg.

- a) Equipment of fishing vessels including more selective fishing techniques
- b) Financial compensation in the event of restrictions due to technical measures
- c) Modernisation of fishing vessels
- d) Derogations for renewal of vessels

- e) Collective projects in favour of small - scale coastal fishing (individual project
- f) Aid to small - scale coastal fishing (individual project)
- g) Aid for early retirement schemes. Compensation to fishermen for temporary cessation of activities in the event of unforeseeable circumstances, such as non-renewal of an agreement, recovery or management plan
- h) Individual premium following a permanent cessation
- i) Individual premium for professional retraining to leave sea fishing
- j) Individual premium to young fishermen for the first acquisition of a fishing vessel
- k) Compensation in the event of natural or industrial disaster, sinking or another cause of force majeure
- l) Aid for Investments in aquaculture new construction, or extension modernization of existing unit
- m) Aid for installation of equipment Jot fishing ports, regarding hygiene or quality of the landed products, environmental or security conditions and working conditions
- n) Aid for processing and marketing of products. Investments for fishing inland waters. Collective operations of product promotion and search for new market outlets
- o) Transparency of the market. Pilot projects (scientific or technical). Technical assistance by the Commission.

I know this list sounds endless and the money involved even more. But the Maltese government can make it happen through the FIFG interventions Council Regulation 1421/2004.

This beneficiary aid would help us to survive and compete in these hard times. We are not asking for any money to scrap our fishing vessels, because we do not believe in such a policy for obvious reasons. "How can one have a better fleet, when one destroys the existing one!" We just want to continue working in a modern world, within a bigger market. Our fishermen are hardworking people with the needed know-how and they deserve to be better treated as European citizens.

As a co-operative that represents most Maltese and Gozitan fishermen, we are doing and continue to do our utmost to overcome the daily challenges with our rather limited resources. We are investing and dedicating as much as we can to adapt to all kinds of changes as workers from a member state of the EU.

My message to my government is clear and simple:

"Do not let go of this opportunity. Either you invest with us and in us or the Maltese fishing industry will die".

PROFILE OF AUTHORS

AKE OLOFSSON

Born in Sweden, 1956, he obtained a BSc from the University of Uppsala in Economics, Development Economics, Business Administration, Statistics and French business language. Post Graduate studies at the University of Uppsala in French language. University diploma in Italian language. FAO External Training in 1995 at the Economics Institute, University of Colorado, Boulder, Eighth Annual World Banking and Finance Program. Mr Olofsson has worked as an Associate Professional Officer in the Agricultural Credit Group, AGS, FAO Headquarters and is currently the Vice-Chairman of the FAO Credit Union Credit Committee in the Marketing and Rural Finance Service, AGSM.

PHIL COTTLE

Phil Cottle is currently the principal and founder of ForestRe Holdings Company. Agro-Forest Risk Management, London. He has experience in providing full time forestry and crop risk assessment consultancy services in over 50 countries for syndicates in Lloyd's of London, as part of Aon's Agricultural Risk Management team. Mr Cottle has also been responsible for planning and instigation of national, provincial crop and forestry insurance schemes including the first forestry scheme for Spain and Indonesia (the National Indonesian Tree Crop Programme or NITCIP). He has also worked in the development of crop insurance schemes for Malaysia, Syria, Sudan and forest provincial fire fighting cost protection in Alberta, Canada.

GUY VERNAEVE

After a short stay in the European Commission in the department of environment and consumer protection, Guy Vernaeve has been working for many years in the agricultural sector, being especially responsible

for co-operative affairs in COPA/COGECA. He has then been at the origin of the reinforcement of fisheries and aquacultural activities within COPA/COGECA and has progressively been responsible for this department. Today, Guy Vernaevé has had to abandon his agriculture duties and functions to be fully engaged in fisheries matters as needs are increasing in many member organisations. Guy Vernaevé has also been Secretary General of the Association of National Organisations of Fishing Enterprises in the EU (Europêche) for the past 15 years.

JOSEPH BORG C.D.H.[Amenity], Dip.Hort [Amenity], PhD.[Hon].

Graduated in Amenity Horticulture (1968-1972) at the Essex Institute of Agriculture and at the University of Cambridge Botanic Gardens, UK. Awarded PhD [Honoris causa] in Horticulture in 2002 by the University of Essex, England. Retired after a 40 year career within the Department of Agriculture as Principal Agricultural Officer. At present he is a consultant to Malta Tourism Authority and Wasteserv Ltd. He is also a part time lecturer at the Faculty of Architecture at University of Malta. He is active in environmental NGO's as well as produces and presents radio and TV documentaries on environmental topics. Mr Borg is also author of several publications on the subject.

RAYMOND BUGEJA

Mr Bugeja is a full-time fisherman coming from a family of fishermen. He is Secretary of the National Fishermen's Co-op and took an active part in the EU pre-accession talks. He is a member of the Advisory Committee of the EU on Fisheries of the Mediterranean.

RICHARD ROBERTS

Born in New Zealand. Worked as a rural finance and agricultural insurance specialist in FAO during the 1970s. In 1982 he starting working in the private sector particularly in the design of risk management and insurance approaches to protect agricultural investments, and in general project development and management. In 1990, he returned to FAO and was appointed Chief of the Marketing and Rural Finance Service in January 1991 from where he retired of age in 2002. His publications on insurance include, *Strategies for Crop Insurance Planning* (1991), and *Insurance of Crops in Developing Countries* (forthcoming 2005).

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