

AgriProtein
technologies

BARENTZ  **SERVICE**



52° Convegno Nazionale
Associazione Scientifica di Avicoltura

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RAW MATERIALS to Solution

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Bastia Umbra 01/04/2016

Insetti: fonti proteiche **sostenibili** nell'alimentazione del pollame?!

L'esperienza Sud Africana:

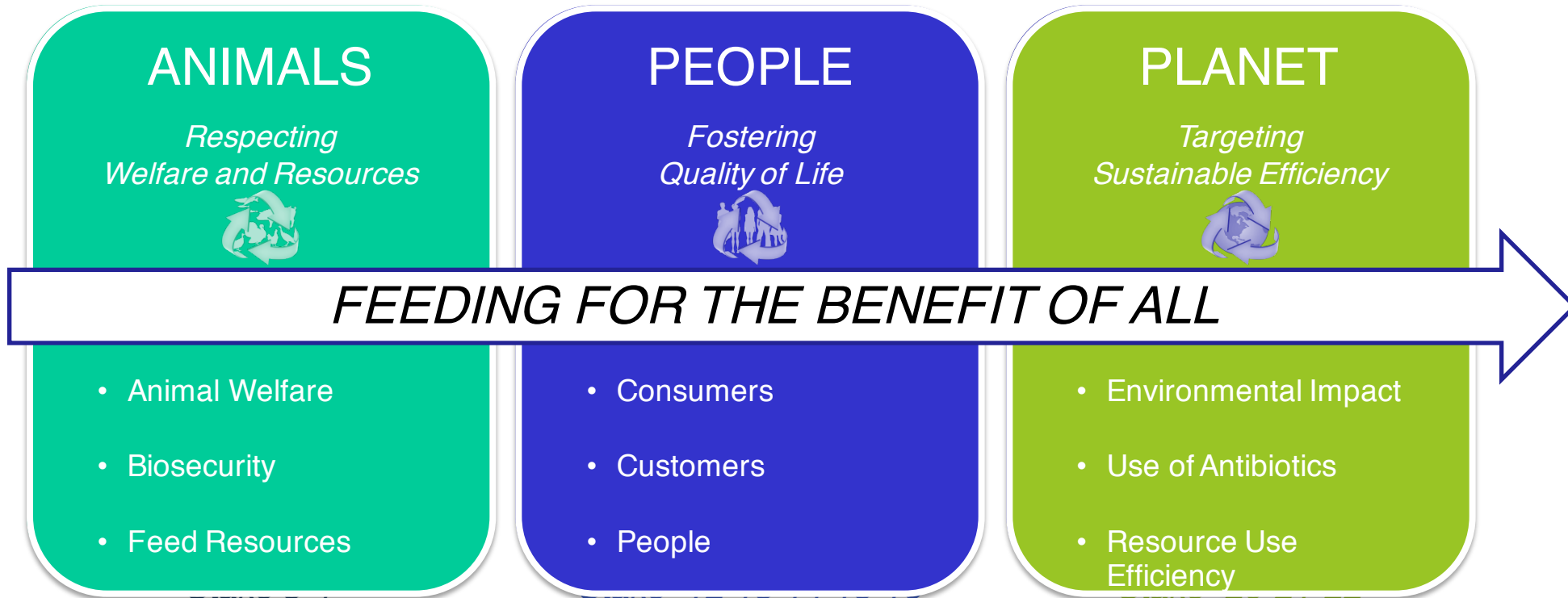
Sustainable Business Solutions
using nutrient recycling to manufacture a
new **sustainable** source of protein

Un Futuro Sostenibile

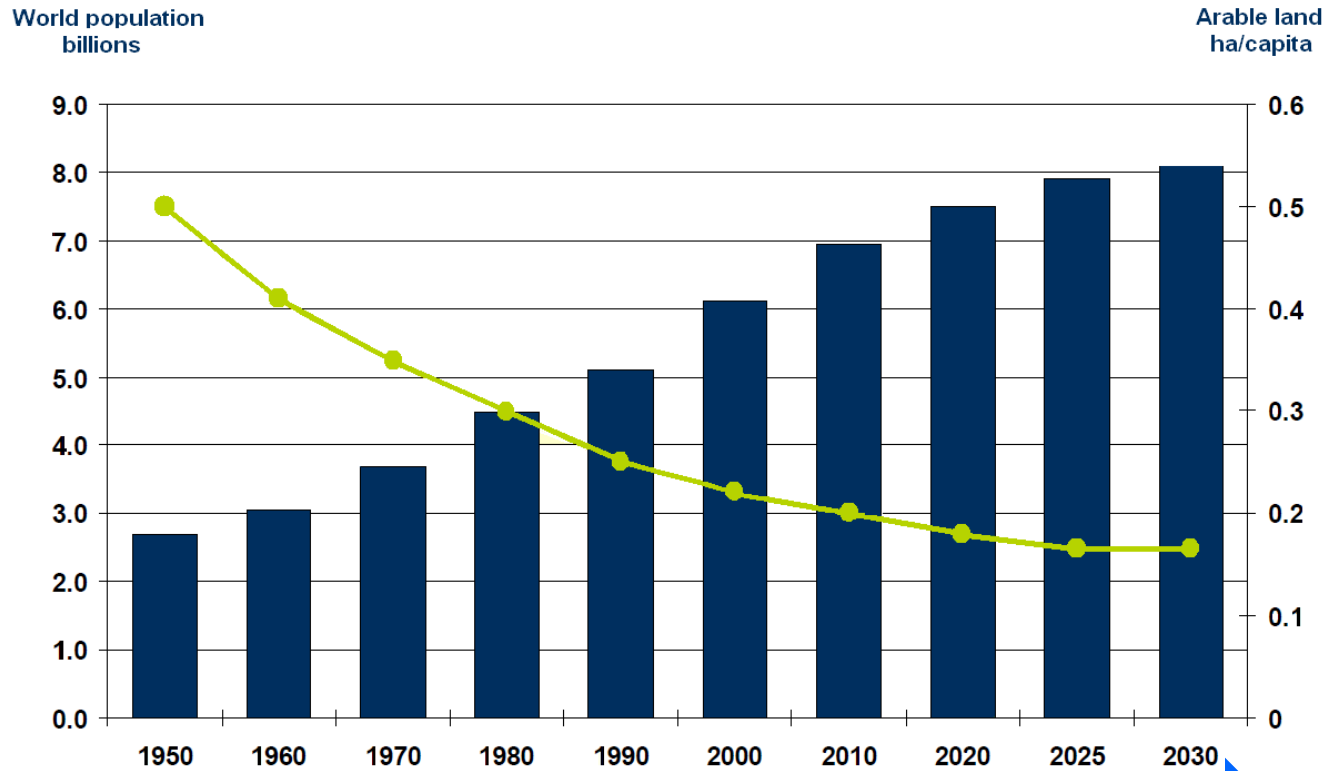
“Un Futuro é sostenibile quando gli obiettivi di salvaguardia del pianeta di prosperità economica e di giustizia sociale sono perseguiti simultaneamente per assicurare il benessere e la qualità di vita delle generazioni attuali e future”



Concetto di sostenibilità

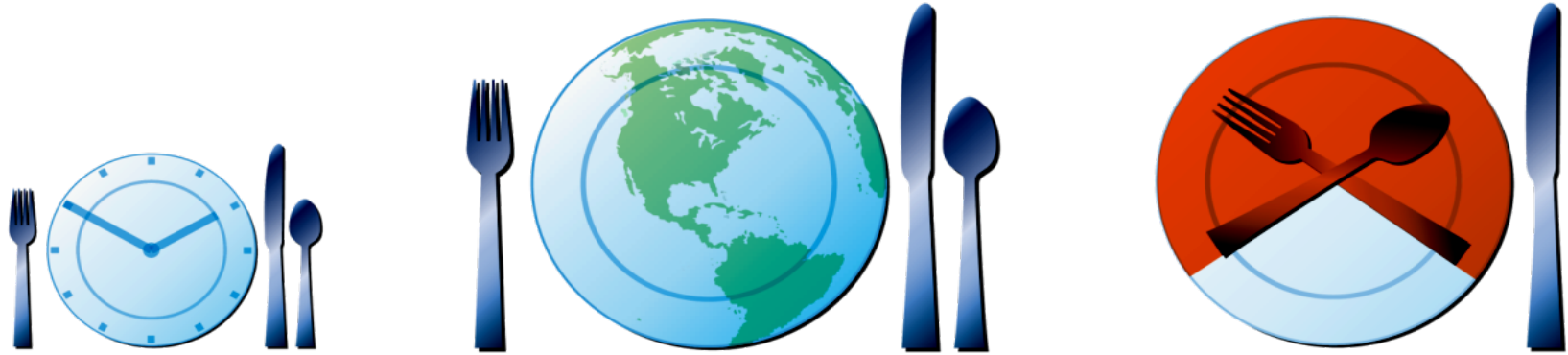


Land and People



Decreasing arable land per capita → more yield needed

Output: Food The Global Challenge



50 years

from now the world
population will
require



100%

more food,
and



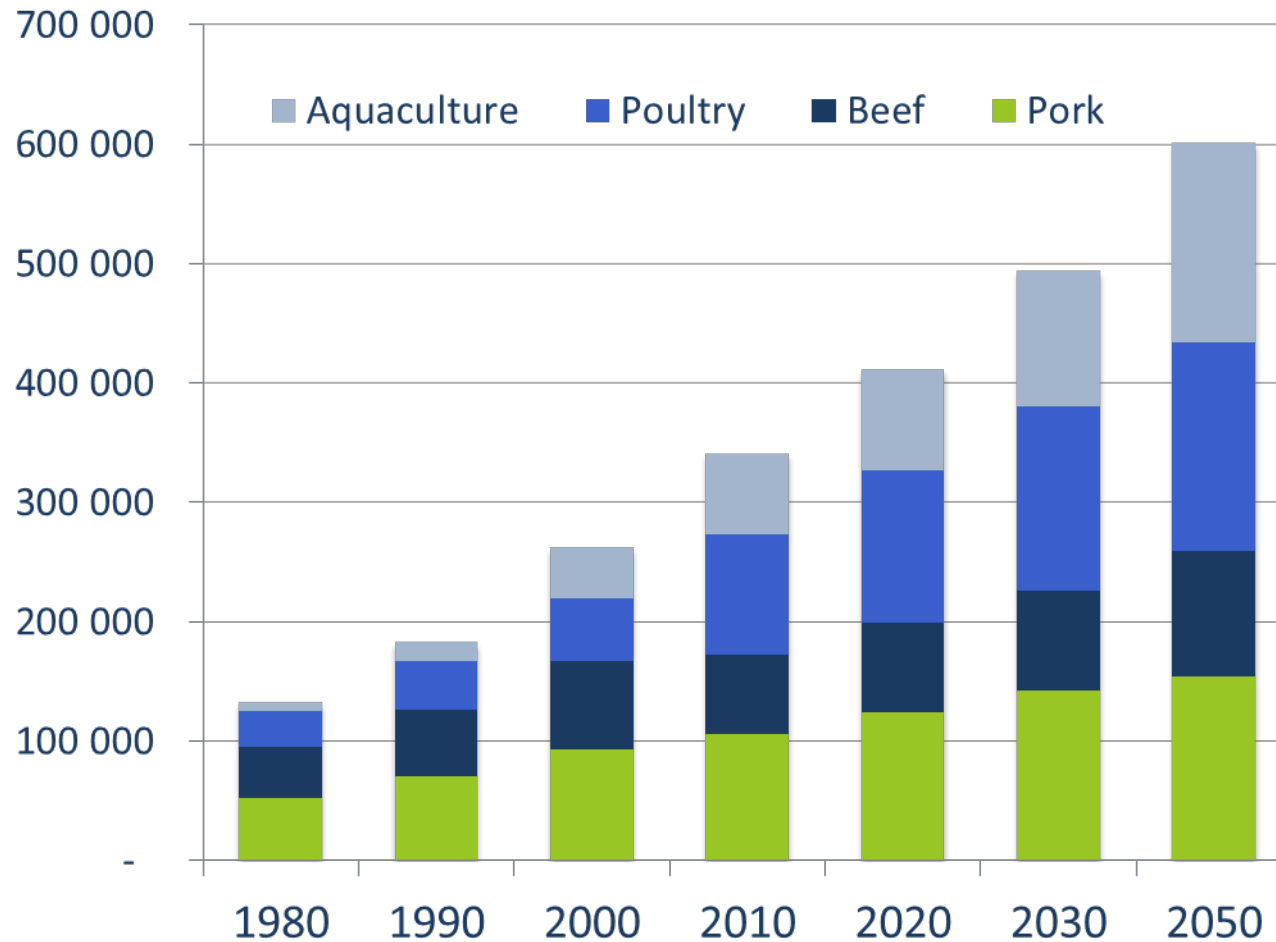
70%

of this food must
come from
efficiency-
improving
technology

Increasing Global Demand

(x 1.000 tonnes)

100%
more food



Insect Meal Makes Sense in this new scenario?

- The world urgently needs new sustainable sources of protein. Protein accounts for twenty percent of all agricultural feed preparations for farm reared
- Insects need to be Sustainable source of natural protein
- Insect larvae are the natural food of chickens in the wild and fish in streams.
- Their nutritional composition is as good as that of fishmeal and better than soya.
- As a natural food it has excellent take on and digestibility properties

Yes, Insect meal makes total sense - it is desired and wanted.

HOWEVER

- The market will not accept anything at scale without the right cost base.
- We have already seen that the market 'gives up' on feeds when they become too expensive .
- In prior decades, cheap fishmeal was used extensively in poultry, now only in specialist starter diets if at all, it is just too expensive - cost benefit .
- Sure in the short term , one can sell to the large Zoos - reptile houses , and specialist pet food manufacturers, but for a commodity to sell it needs a price point and we believe if that is above **\$1,350** in the medium term that will be almost impossible to sell at large volume.

So...

The problem in the EU is not the legislation allowing livestock feed made from waste - this will of course change - EVERY free range chicken eats maggots in any case in the fields they are grown in .

The problem will be the allowable substrates!

EU Situation

In the EU if you can only use 'pure clean organics' you will have to either pay for feed, or at best have lower available quantities.

Furthermore great quality inputs have other uses.

Feeding expensive product to insects to make and expensive product is not a business model that will have long term sustainability!

So ultimately the EU needs to legislate the end product, not the input / supply chain.

Health and product cleanliness is VITAL, but this can be done in the post processing and with good Quality Control

How AgriProtein makes chicken food from organic material:



Find fly fuel: 100 tonnes of organic waste per day is collected. This comes from a range of sources, including uneaten catering-industry waste from airlines, restaurants and hotels, as well as offal from abattoirs



Process it: At the factory, the waste is blended into a feed mix for the fly larvae. This waste is pretreated to remove any non-food items such as metal, glass or plastics that have crept in. It is also dried to reduce the water content.



Breed flies: Within the factory, 300 fly cages are designed to maximise mating. Each cage contains water systems for the flies (ensuring they don't drown). Temperature, humidity and lighting are also closely controlled to promote their egg-laying.

How AgriProtein Makes Chicken Food from organic Material:



Time it right: Laying areas in large cages are designed to be attractive to the flies, and they lay all their eggs in one place. All the eggs have to be at exactly the same stage of development before they feed, so the larvae don't kill each other when they hatch.



Grow flies: As the larvae grow, they will consume all the waste allocated to them by batch. At the end of the growth stage, the larvae are mechanically separated from any waste residue.



Package: They are then dried, crushed to extract oil (MagOil, rich in fatty acids) and milled into a flaked product for delivery to animal feed mills. This provides the protein element for feeding farmed animals such as chicken, fish and pigs.

- 7 tonnes of Magmeal and 3,000 l of MagOil per day

SUMMARY

The factory is now full complete - capacity of 100 tonnes of input a day, making 7 tonnes of Magmeal and 3,000 l of oil.

However we are still finding our way and are not running at our full capacity.

Scale up is NOT as easy as we had thought !

SUMMARY

We sell all our product locally, it is easier for us, but have engaged to start our European access, and we have plans on hold to produce in Europe as soon as we have greater understanding of the legislative landscape from EFSA and DG Sante.

Agriprotein is a founding partner of ipiff.org, a very robust website and grouping of insect producers in Europe and a wonderful resource on legislative affairs.

Conclusion

1. **Cost of production:** is the immediate target for the industry not to disappear as a niche opportunity!
2. **End product Quality Control:** is about appropriate, hard and targeted standards
3. **Legislation** have to change
4. **Large Scale and Sustainable Production** are necessary.

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Thank You



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