

Condiment Paprika Recent Research Developments

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Rural Industries

Research & Development Corporation



Condiment Paprika

Recent Research Developments



Condiment Paprika

Recent Research Developments

- ASAS Pty. Ltd
- sole licensee for the South Pacific region
- of the famous condiment paprika cultivars from
- Hungarian Vegetable Crop Research Institute Ltd

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- WHAT IS THE POTENTIAL?
- During 1995-96 the total paprika products imported into Australia were valued at \$5.3 million.
- The Australian, European, North American, Japanese and South East Asian consumption is estimated at 19,000 t y⁻¹ which is a potential market value of AUD55 million.
- Capsaicin and oleoresin extracted from condiment paprika for pharmacology and the cosmetic industry must also be considered.

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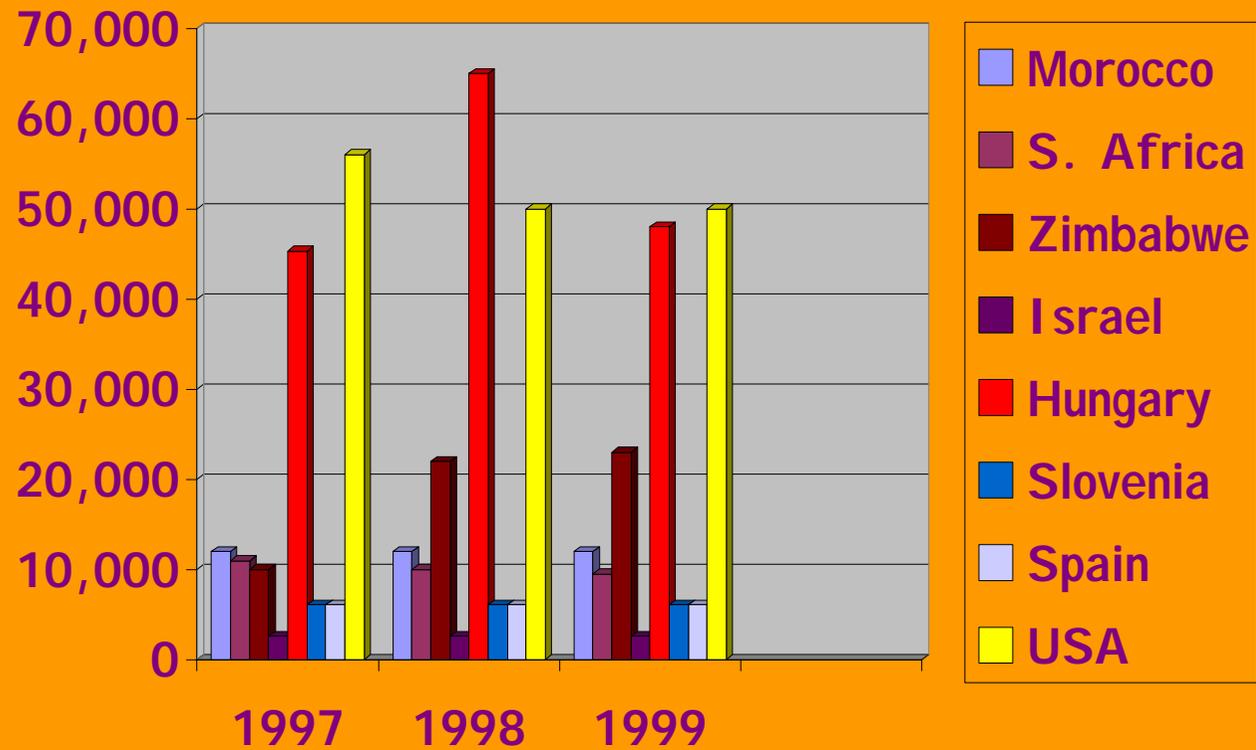
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- IS THERE AN INCREASE IN DEMAND?
- European condiment paprika marketing experts estimate 20% growth in condiment paprika consumption in Europe and Asia per annum over the foreseeable future.

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"Paprika Production 97/99"



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- ALTERNATIVE USES OF CONDIMENT PAPRIKA
- Hungary and Spain flooded the spice market in 1998
- Zimbabwe focused its paprika production on oleoresin (pigment) extraction and their production was exported to Spain and Germany
- The recent political developments in Zimbabwe are greatly hindering and might significantly reduce the paprika production and export from that country

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- **INVOLVEMENT OF ASAS**
- **The Hungarian Vegetable Crop Research Institute,
Condiment Paprika Unit,**
- **Authorised ASAS Pty Ltd as**
- **Their sole representative in Australia and the South-Pacific
region.**

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- ARE WE ABLE TO GROW PAPRIKA HERE?
- The Hungarian condiment paprika varieties are performing satisfactorily in Australia.
- Even at Cobbitty, NSW, which is not an ideal site for paprika production.

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- **GOVERNMENT ASSISTANCE?**
- **From RIRDC:**
 - To introduce and develop genetic lines of condiment paprika
 - To produce cultivars
 - with high initial pigment (> 200 ASTA) and
 - dry matter content suitable for direct seeding and mechanical harvesting.
 - To develop a commercially viable integrated production, harvesting and processing system for identified markets

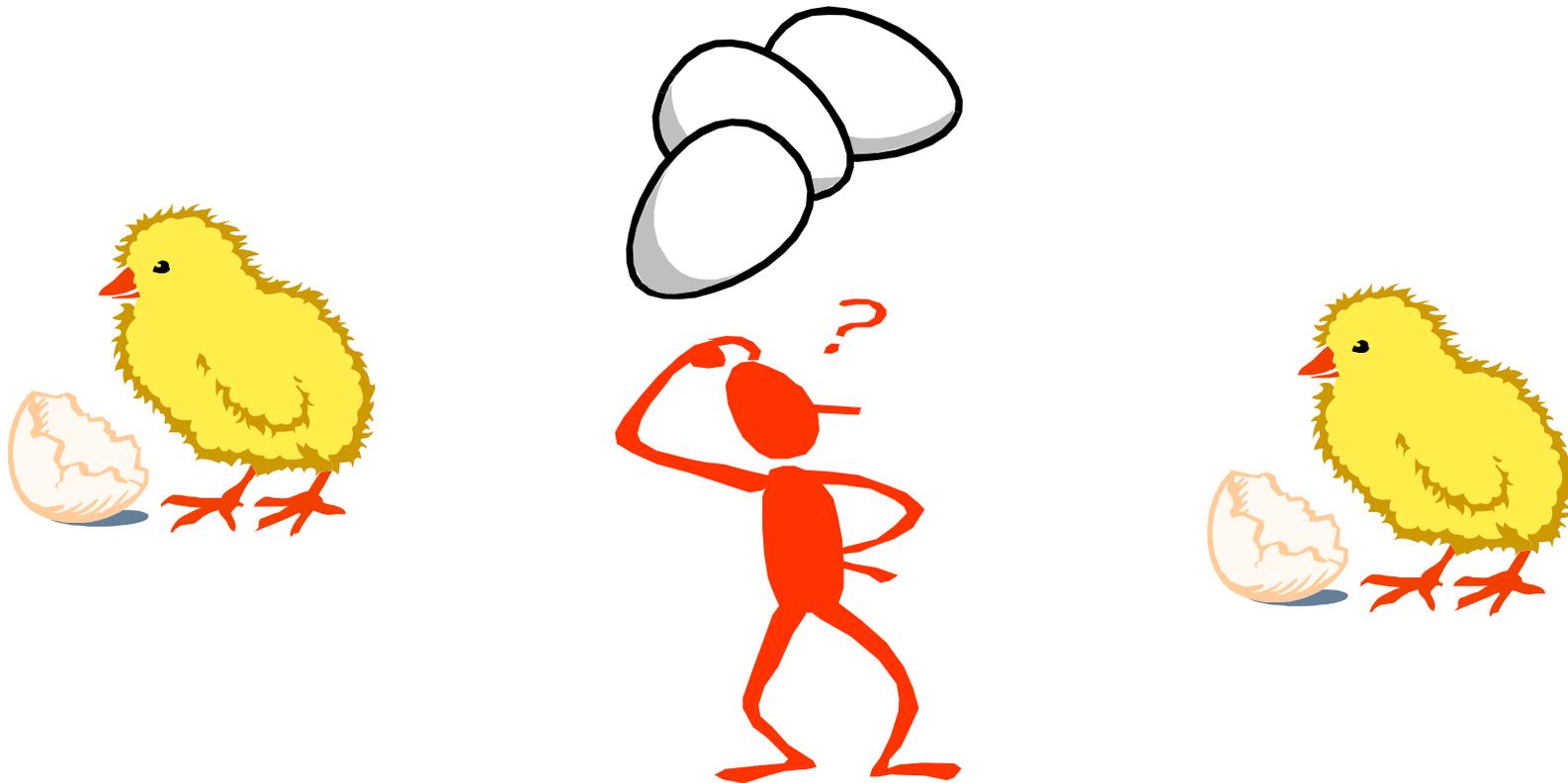
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- INITIAL COMMERCIAL PRODUCTION
- Commercial production and mechanisation suffered major setbacks.
- Difficult to decide which was needed first (the chicken or the egg) :
 - should the production be established first, then
 - buy the machinery
 - or the reverse.

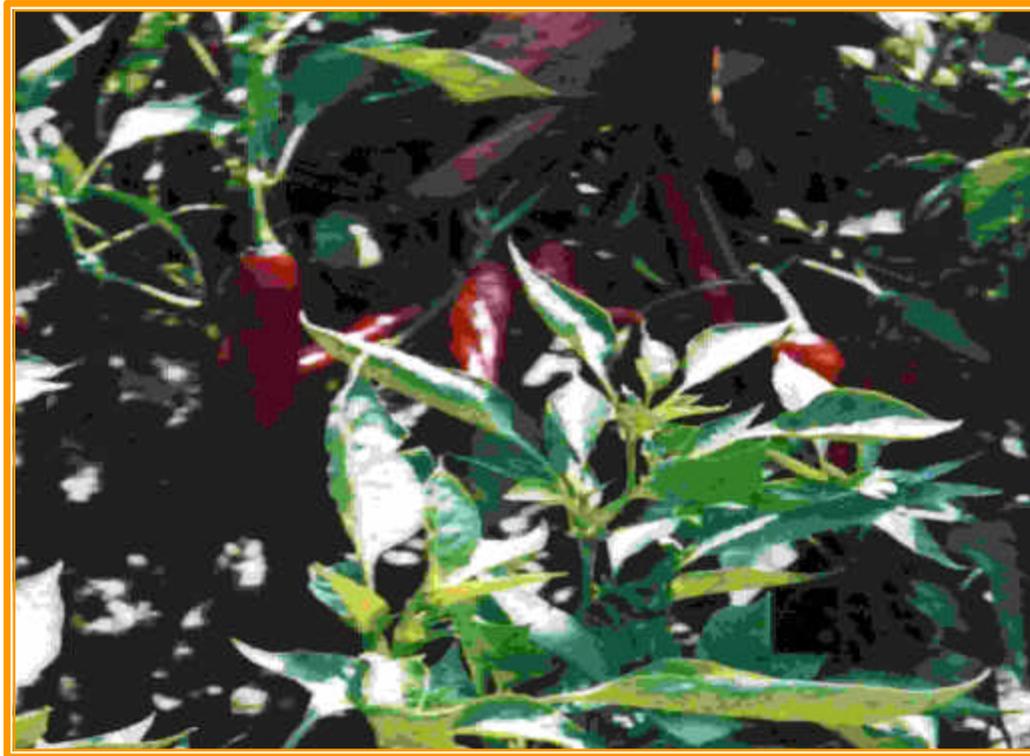
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Chicken Or the Egg ?



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- MORE RECENT COMMERCIAL PRODUCTION TRIAL
- During the 1999/2000 season a trial of paprika was successfully grown.
- Estimated yield of 22 tonnes per hectare.
- Paprika can be grown on a large scale.
- Nevertheless, without full mechanisation including specialised driers it is uneconomical.

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- INVESTMENT TO ASSIST PRODUCTION
 - A SPECIALISED HARVESTER costs USD130,000
 - A MOBILE DRIER is about the same
 - Including machinery, drier and improved research equipment half a million dollars of initial capital investment is needed.

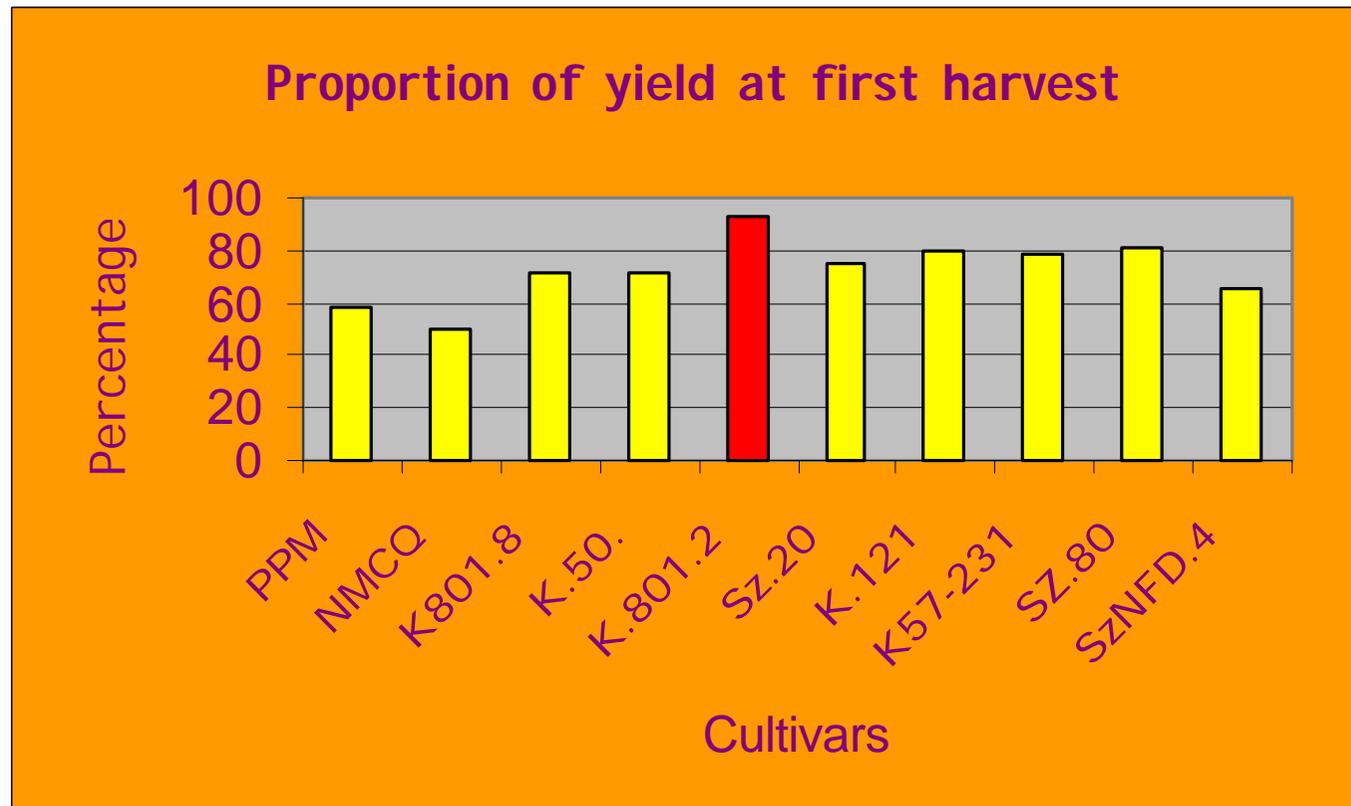
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- MECHANISATION?
- Our aim is mechanical harvesting
- It is extremely important to have synchronised ripening.
- From practical point of view the large portion of the yield should be available at first harvest.

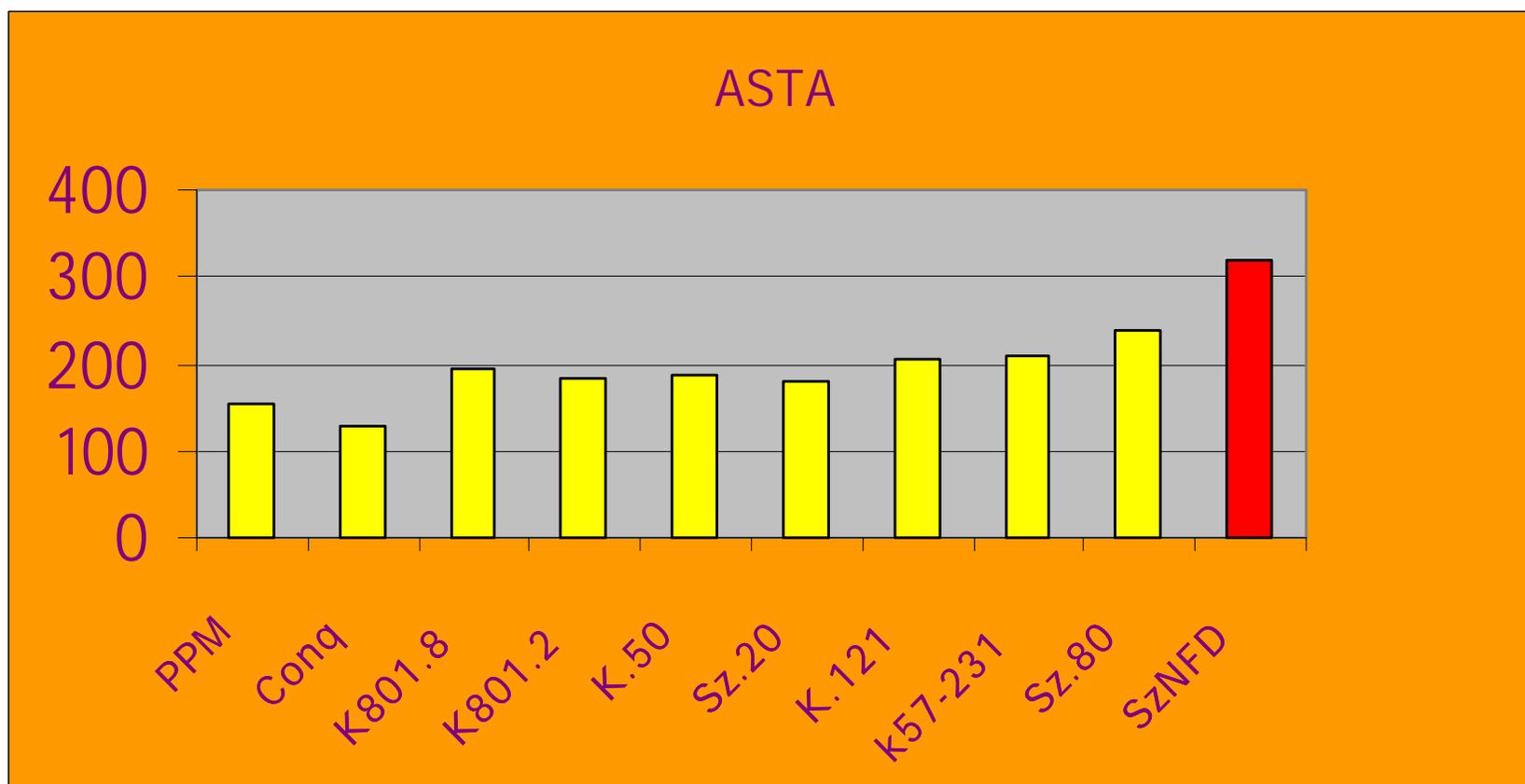
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Recent Research Developments

- CAN PLANT BREEDERS DO ANY MORE ?
- 1. DETACHABILITY FROM CALYX
- We identified the gene in a wild species, *Capsicum chacoense*, which allows the fruit to be detached from the calyx at full maturity.
- We have now several early generation lines in our backcrossing program where the detachability is combined with the condiment paprika characteristics.

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- CAN PLANT BREEDERS DO ANY MORE ?
- 2. SNAP-OFF PEDICEL
- It is important both for hand or machine harvesting that the pedicel should easily snap off the stem.
- We identified a gene, which allows the very easy separation of the pedicel.
-
- We have several F₄ condiment paprika lines having the 'snap off' trait.

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- ARE WE ABLE TO PRODUCE HYBRID SEED ?
- To produce hybrid seed in a reasonable price bracket:
 - The identification of genetic male-sterility in the seedling stage is needed.
 - Male sterile plants together with the pollen source are planted out in the field
 - Fertilisation will take place with the help of bees.

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- WHAT ARE THE FUTURE PROSPECTS ?
 - Import replacement
 - Export possibilities of paprika products
 - Hybrid seed production scheme that is patentable.
 - Commercial micro-propagation of capsicum
 - Gene for detachability from the calyx
 - Gene for 'snap off' trait of pedicel
 - Protected cultivars possessing these genes will open up a seed export

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- MARKET REVIEW
- ...Indian product is generally regarded as too "hot" for optimal use as a colorant.
- (AIC Market Briefs 3/8/2000)
- The world supply situation continues to be firm and more buyers are chasing the limited supplies.
- Oleoresin availability is extremely limited.
- Prices are moving up in response to the raw material situation - this situation is expected to continue.
- (Kancor Crop Update. 21st July 2000)

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- DOLLARS AND CENTS
- 25 t/ha raw = 4,166kg dried @ \$6/kg store value \$24,966
- 12kg dried paprika yields 1kg oleoresin @ \$98.80/kg
- 4,166 kg dried paprika will yield 347 kg oleoresin
- Oleoresin will have a value of \$34,283

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- DID WE SEEK OTHER INDUSTRIAL PARTNERS?
- Most organisations that we approached will be inclined to use the finished product but
- they are not inclined to invest in something, which is new in this country.

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PAPRIKA



A NEW INDUSTRY FOR AUSTRALIA