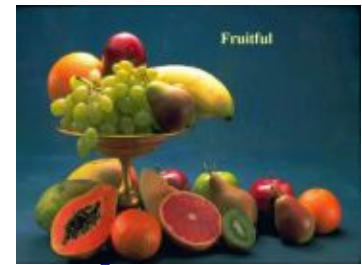
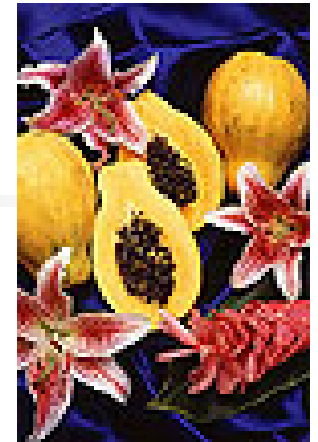


Postharvest Quality and Traceability for Marketing and Export of Tropical and Subtropical Fruit:



Achieving success in international markets



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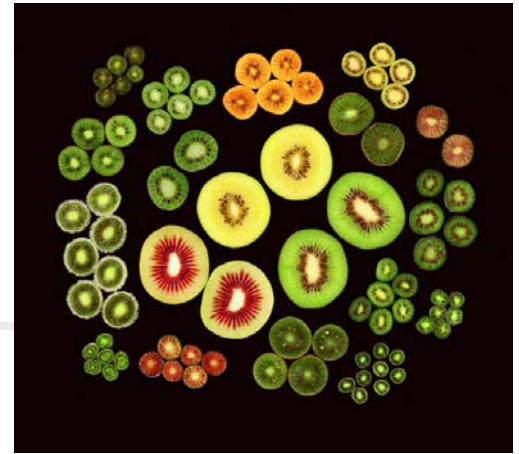
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Outline

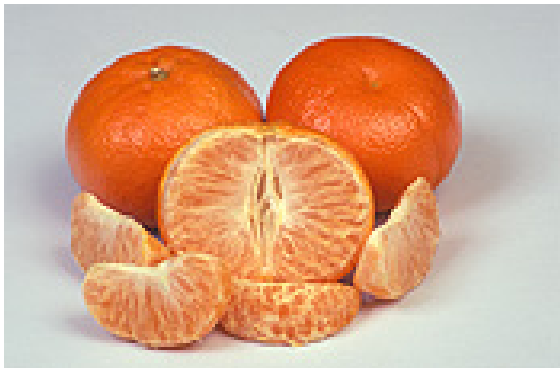
- Diversity of fruit potential
- Champions needed
- Meet market requirements
- Market research and promotion
- Food safety; food miles
- Postharvest requirements
- Growers and cooperation



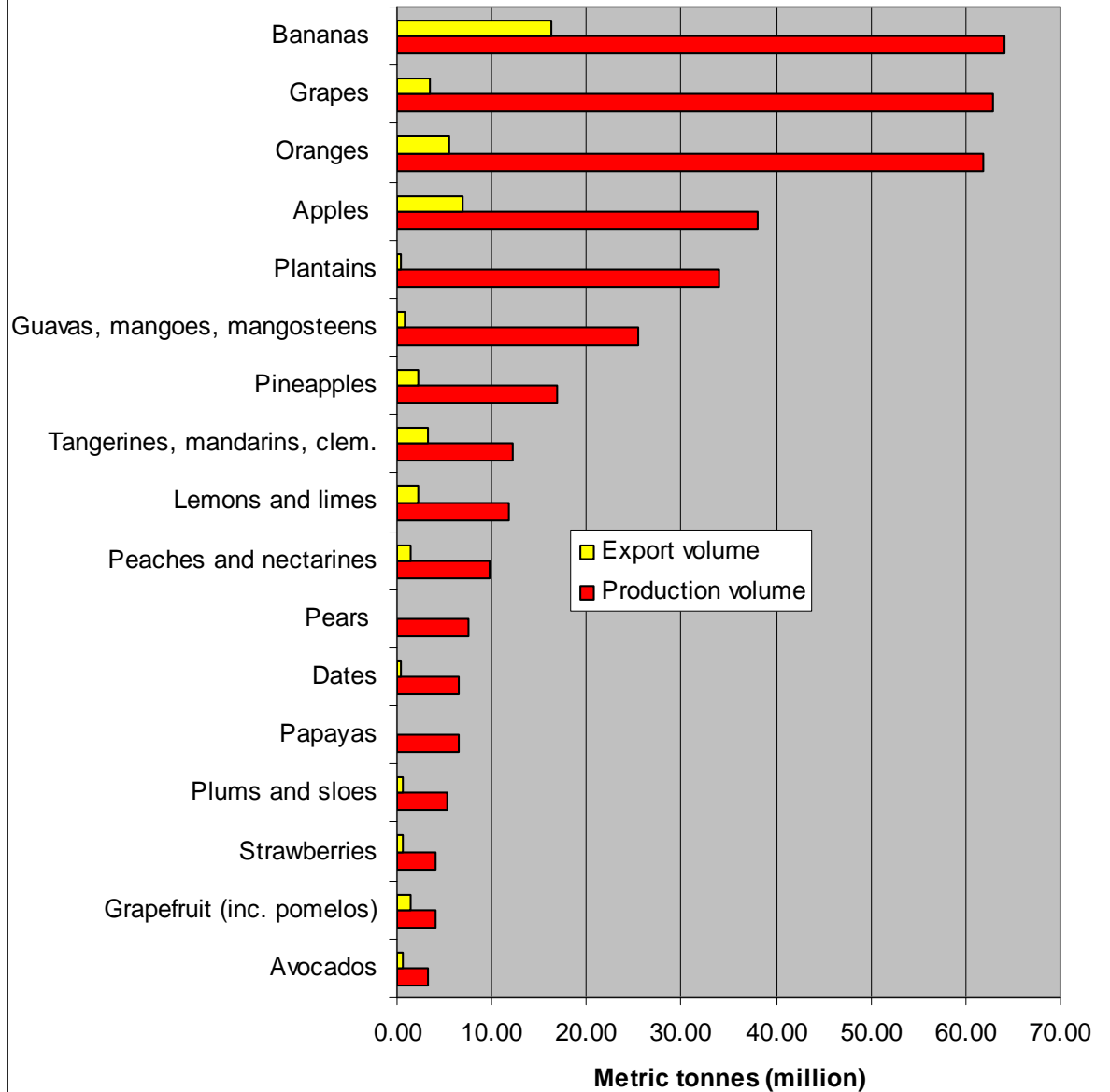
Diversity of fruit



- Only 8 major tropical and subtropical fruit types listed in FAO statistics
- Banana/plantain, citrus, guava, mango and mangosteen, pineapples, dates and papaya
- Many others with potential: jackfruit, litchi, durian, mangosteen, carambola, longan, cherimoya, passion fruit, figs, pomegranates, pistachio, pecans and others.
- Great potential for market development



World production (2006) and Export (2005) of Major Fruit Types





Champions



- New fruit products require a champion
- Passionate, determined, articulate
- Must be persistent, persuasive, committed and motivated
- Advocate benefits and opportunities
- Must influence behaviour throughout supply chain
- Must see setbacks as opportunities



'Agriculture is good business'

Agriculture and Agro-based Industry Minister Tan Sri Muhyiddin Yassin talks to PATRICK SENNYAH about the aims of the ministry and his hopes for the RM9 million campaign to promote agriculture

Q: What is the objective of this campaign?

A: We want to create awareness and a better understanding of our agricultural policies. We hope to get more Malaysians to venture into agriculture.

There have been so many programmes by the government to promote agriculture, but many people still do not know much about it.

Many shy away from agriculture as they feel it is a non-glamorous, low-profit and risky business. They feel there are no prospects and opportunities.

But they are not aware of the vast potential and profit in agriculture.

We also need private sector participation. The government is doing its part in providing the infrastructure and the private sector must play a bigger role.

Q: Is the campaign also aimed at getting youngsters interested in agriculture?

A: The majority of our farmers, who are above 60, are becoming less active and this worries us.

In 2005, there were about

“
The major thrust of this campaign is geared towards telling younger people that agriculture is a business prospect which can yield good profits.

Tan Sri Muhyiddin Yassin

future agricultural needs.

Q: What is the overall objective of the agricultural policy?

A: It is to enhance agricultural development. We have to push agriculture to ensure the needs and demands of the country are met.

At present, Malaysia's food import bill is about RM14 billion per year, with meat imports accounting for about RM4 billion. (Only about 25 per cent of the country's meat demand is met locally.)

We must harness our resources and take a serious look at agriculture. That is why our theme for the campaign is "agriculture is business".

We must push agriculture towards becoming the third engine of growth after manufacturing and services.

Q: What about the use of new technology to boost the sector?

A: There has been a lot of progress in the agricultural sector, with the increased involvement of technology. Information and communication technology

We already have lawyers and doctors who have gone into agriculture and are doing very well.

The government is creating so many opportunities to increase food production, beef, chicken, mutton, etc. There is a shortage of these products in our country, with demand much higher than supply. That is why Malaysia is importing so much to meet local demand.

Even fruits, flowers and other crops can be profitable and easy using modern technology.

Q: Will this campaign achieve its goals?

A: We hope it will help change people's views towards agriculture. One must understand that it is not just about planting vegetables or padi.

Through this campaign, we will provide the relevant information to anyone interested and advise them on the relevant procedures to get land, funding and others.

Q: Will the government provide the necessary assistance and infrastructure?

This Minister is a **champion** for Agriculture and Horticulture in Malaysia. We need more like him in all countries.. All power to his advocacy.

A champion for kiwifruit



- David Jenks – a champion of Zespri Gold kiwifruit
- Worked with growers
- Worked in Asian markets
- Committed, articulate and passionate



Market requirements



- Consumers are the target; they must be satisfied again and again
- Consumers are individuals
- Consumers are irrational and illogical
- Consumers spend their own money so they buy what they want and like
- Production must be market (demand) led and not producer (production) push



Market needs

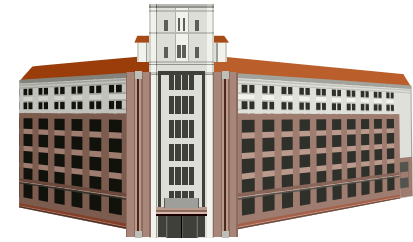


- Understand market and consumer; market data must come back to producers
- Health, safety, appearance, taste, texture, novelty and indulgence are driving forces
- Consumers becoming globally conscious and environmentally aware
- Quality is critical to satisfy consumers

Market research



- Understand consumer needs
- Understand retailer needs
- Understand the competition, and this may not only be fruit – vitamin pills, fruit flavoured sweets, and snack foods
- Understand market dynamics, volumes, seasonality, price fluctuations
- Plan strategically using all of the above



The supermarkets

■ What do they want?

- Excellent quality
- Same day freshness
- Rapid cooling and quality refrigeration
- Extended shelf life
- Moderate, sustainable prices
- Consistent pricing through year/season
- Regular, consistent supply
- Appropriate packaging
- Guarantee of product safety
- Produced using GAP
- Product specifications achieved

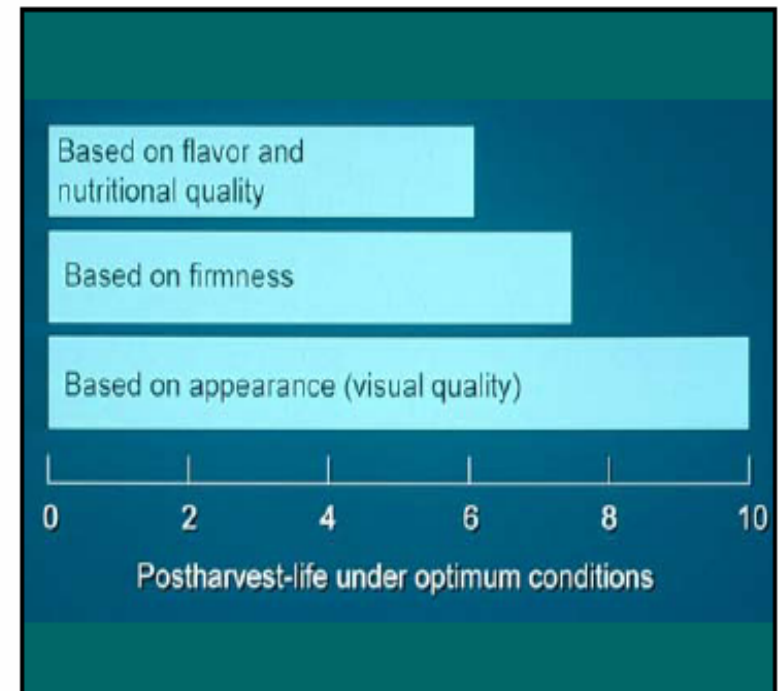
■ What do they get?

- Poor quality
- Not fresh
- Poor storage and transportation facilities
- Short shelf-life
- High prices expected
- High fluctuation of prices
- Inconsistent supply
- Variable and inadequate packaging
- Food safety requirement not adhered to
- No use of GAP practises
- Product specifications not followed

Market quality



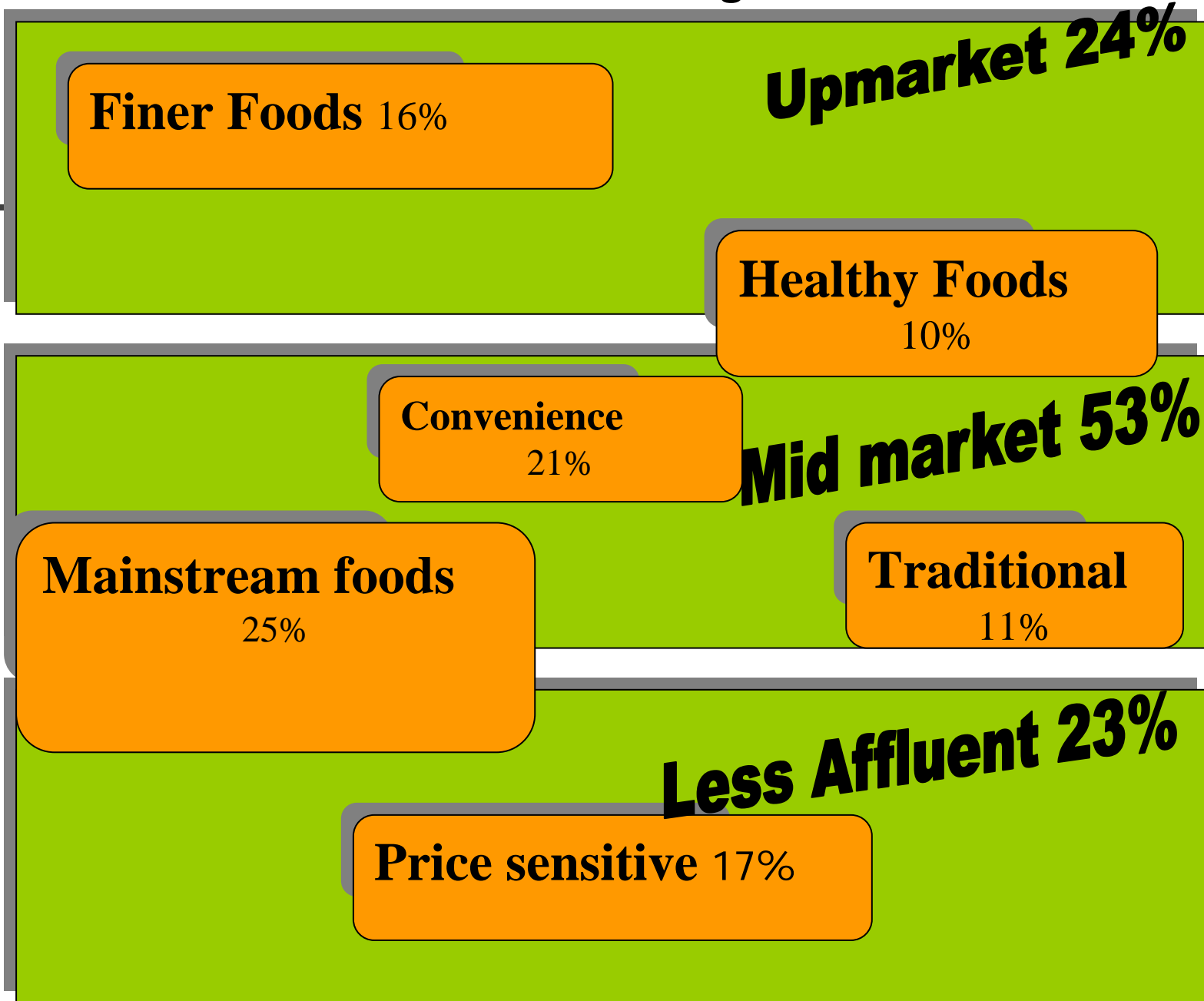
- **Intrinsic** attributes
- Appearance
- Size is not everything
- Taste and texture
- Nutritional and health benefits –vitamins, antioxidants
- Storage and shelf life
- Quality, volume and price differentiation
- Tropical fruit have it all



After Kader 2005

Affluence

TESCO UK Market segmentation



Market quality



- **Extrinsic** attributes
- Environmental impact; carbon footprint
- Fertiliser and pesticide use
- Packaging – biodegradable
- Organic products –IFP systems
- Storage, transport and distribution efficiency

Promotion



- Consumers must know about the product
- Promotion, promotion, promotion!
- Costly but essential
- Spend money to make money
- In store sampling and assistance
- Cultivate chefs in restaurants
- Use stories womens' magazines
- Radio and TV



Food safety



- Must comply with retail and market requirements
- EUREPGAP, BRC and Codex standards
- Consumers expect to eat safe food
- They trust the retailers to provide safe food; outrage at failure
- Serious market effects for lack of compliance

Food safety is a serious business —make sure it is right!

- Trust in brand, country and industry jeopardised if problems found

China executes high-ranking food and drug official

Corruption crackdown claims manager who took bribes over deadly products

BEIJING — China has executed the former head of its food and drug watchdog who became a symbol of the country's product safety crisis following his conviction for taking bribes to approve substandard medicine blamed for several deaths.

The 66-year-old Zhang Niye was convicted at a State Food and Drug Administration news conference held to highlight efforts to improve China's troubled food and drug safety.

The few corrupt officials of the SFDA are the shame of the whole system and their scandals have

revealed some very serious problems," spokeswoman Yan Hongyan said. Zhang was sentenced to death in May for taking bribes to approve or subvert the placement of over 100 drugs and other substances in the country.

Qao Wenzhong, the administrator's former associate and registration department director, was given a death sentence along with a two-year reprieve for accepting bribes and dereliction of duty. Such suspended death sentences are usually commuted to life in prison if the convict is deemed to have reformed.

BAD TASTE

Food problems in China have become a national issue.

- Drug tainted food
- Illegal pharmaceuticals
- Poor farmers with contaminated soil
- Both had negative effects

Zhang's death sentence was unusually heavy even for China, which is believed to carry out more court-ordered executions than all other nations combined. It is seen as a sign of the leadership's determination to confront the country's food product safety issues.

The official, Zhang Niye, 66, was executed with the approval of the Supreme People's Court.

China has been under pressure domestically and internationally to improve its quality control after a series of health scares, including substandard Chinese products, including exported tainted food and fake drugs.

Four months over, Chinese-made products were spurned last year by the beaches of Japan. In Osaka, who took medicine contaminated with methylenediamine imported from the People's Republic. It was taken off to the market.

In North America this year, just food containing Chinese wheat gluten

linked with the chemical melamine was blamed for the death of dogs and cats.

Since then, US importation have turned away or eyed, led to the health and popular as brands decreased with least price.

Corruption in Beijing also has been blamed in a handful of countries due to its country of distribution of food.

Beijing said that in the first half of the year almost 30 per cent of products made for consumption within China had been found to be substandard.

Caught and punished. Food and drug safety has been the most problematic, primarily because of excessive doctor and additions.

NZ Herald 11 July 2007

Food miles



- Potential problem for export of fruit
- Miles travelled is not appropriate
- Serious economic analysis must be undertaken on energy (carbon footprint) of total production and postharvest systems



Postharvest requirements

- Know your crop and maintain control of production and harvesting – R&D
- Establish harvest maturity – R&D
- Pick it right – use correct tools
- Avoid physical damage - R&D
- Optimum temperature management through cool chain - R&D

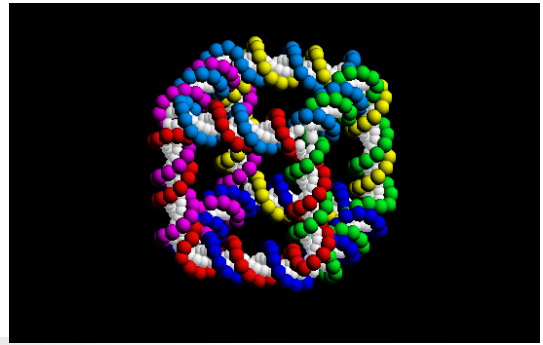


Postharvest requirements

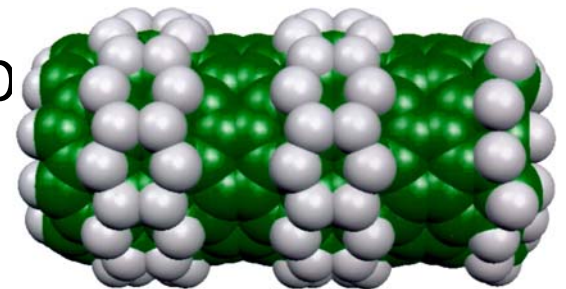
- Pack it right but according to market demands
- Packaging - protection, preservation and promotion –R&D
- Develop MAP or CA options – R&D
- Develop coolstore requirements to extend storage and shelf life - R&D
- Sea not air freight if possible
- R&D and training essential to underpin development



Traceability

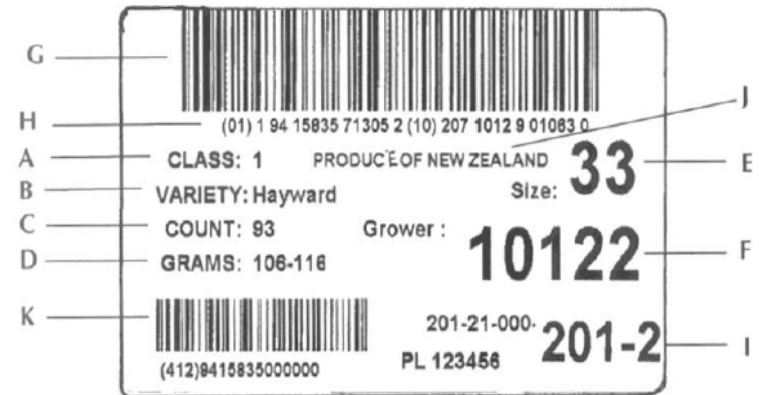


- Track and trace systems essential
- A requirement for major supermarket chains – to avoid insurance claims?
- Many systems available
- Modern technology provide tools
- GPS – real time monitoring and control
- Bar codes
- RFID systems
- Nanotechnology the next step



The Bar code for kiwifruit

- Every pack
- A – Class and Class Code
- B – Variety and Variety Code
- C – Count and the actual number of fruit in this pack
- D – Grams and the weight range of fruit in this pack in grams
- E – Size and the size code for the fruit in this pack
- F – Grower Code
- G – Barcode
- H – Barcode Human Readable with Application Identifiers (AI's) indicate the following: AI 01 (county code, company code and pack code), AI 10 (unique pack batch identifier)
- I – Packhouse area
- J – Produce of New Zealand
- K – Barcode with AI 412 (location identifier)
- Copyright GS1,



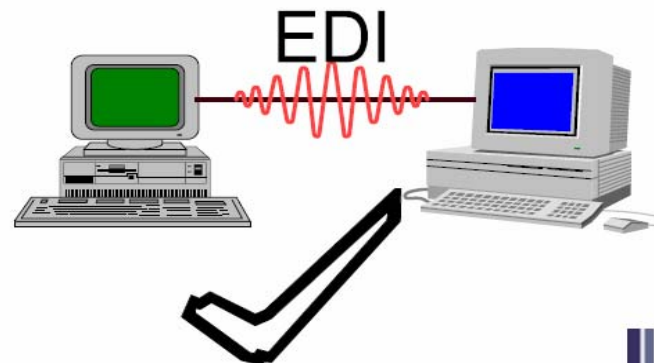
Electronic data exchange

- We will see more of this in the future



What is Electronic Data Interchange (EDI)?

The Application to Application Exchange of Business Information
without Human Intervention!
(Or at least minimum Human intervention.)





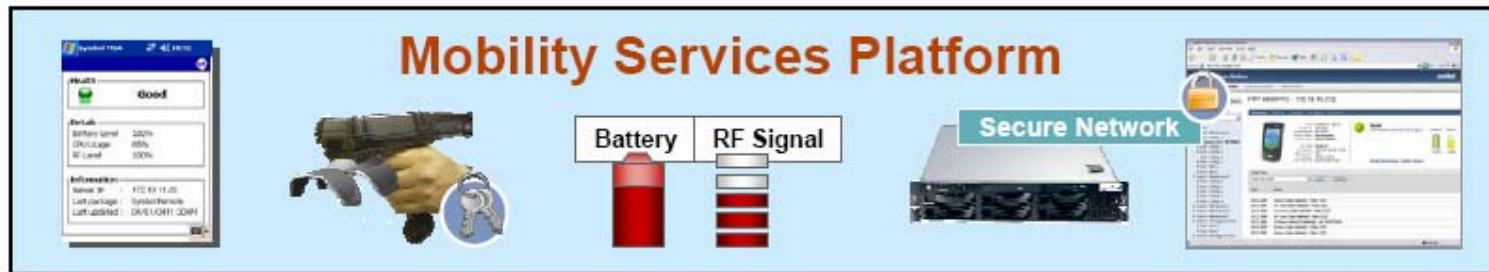
Traceability and food safety

- Individual items can be identified and tracked
- Food safety and traceability the driver
- What technologies will be used?

Vegetables fed to database

■ China will begin tracking its vegetables, in a bid to ensure food safety during the 2008 Olympics. Every cabbage, carrot and pea pod will get its own identity number and file. The city will need more than 5000 tonnes of vegetables during the Olympics, mostly from Beijing, Hebei and Shandong.

The RFID system



Capture

Move

Manage

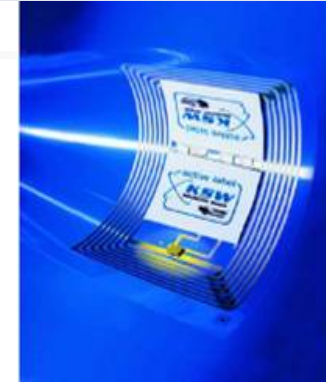
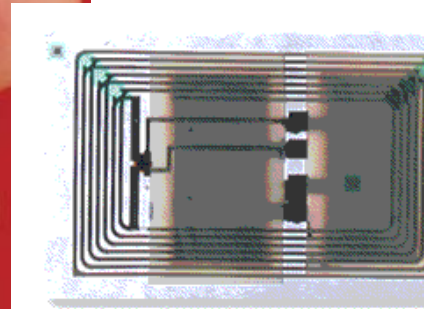
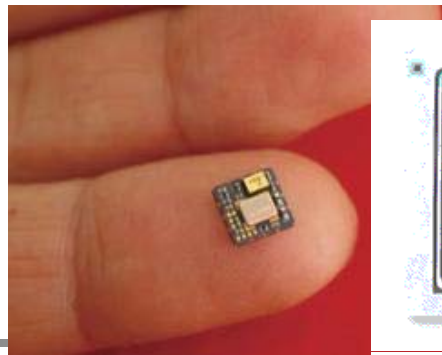


RFID – the Smart Label

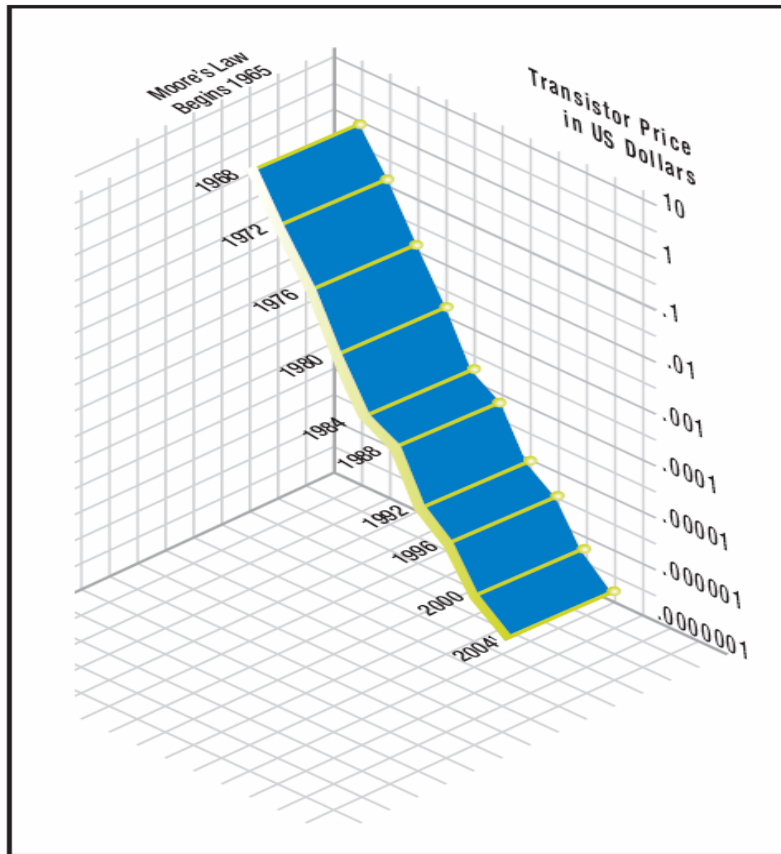
- RFID allows companies to know and understand at any given time:
 - * **What** items they have
 - * **How** many items they have
 - * **Where** they are located
 - * The ambient and product **conditions**
- This will enhance traceability, food safety, inventory control, improve delivery efficiency, reduce counting and documentation errors
- Increase customer service, reduce costs, reduce losses through theft and improve profitability.

RFID

- Radio frequency identification is coming of age
- Prices falling per individual unit
- Becoming possible to 'label' smaller items.
- RFID units can measure product and its environment such as temp and vibration.
- Cell phones can be RFID readers



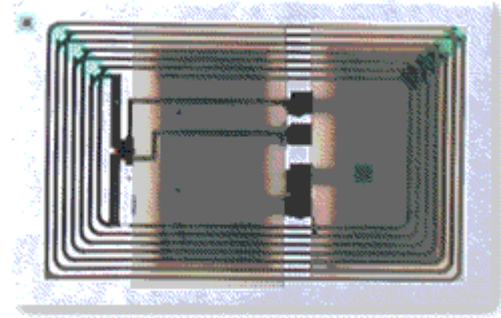
RFIDs now down to 12c; will they hit 5c and thus be really affordable?



...to such we
als connected to a
or automobiles, a
ipment. The elec
be feasible today
in the pro

The price per transistor
on a chip has dropped
dramatically since Intel was
founded in 1968. Some people
estimate that the price
of a transistor is now
about the same as
that of one printed
newspaper character.

RFID



- Spanish supermarket chain Mercadona has installed RFID tags within the dry, fresh and frozen goods areas of its new logistics centre near Madrid.
- RFID tags integrated into each system pallet, rather than conventional barcode labels.
- Wal Mart will require all incoming goods to store to have RFID by 2010.
- Estimated that the total value of this market, including systems and service, will rocket from \$2 billion in 2006 to \$27 billion in 2015.

Growers



- Common problems from all speakers
- Growers must assume POWER
- Organise grower groups through cooperation
– public and private sector
- Growers must find their own champion(s)
- Education and training essential to persuade change from traditional to modern supply chain management systems

Conclusion



- Growers must produce what the consumers will pay for
- Communication, feed back and market signals to grower must be achieved – mobile phone system?
- Champions essential to achieve success
- Restructuring of the supply chain system from orchard to consumer must occur to reduce transaction costs



Conclusions



- Safety and quality standards must be achieved for local and export markets
- Production and postharvest information must be generated and implemented
- Traceability systems possible with new technologies – GIS, fast computers, bar codes, RFID and nanotechnology
- R&D plus education and training are essential components to drive change
- Both Governments and private sector have key and complementary roles to play

