

# CLONAL FORESTRY

**PUBLIC  
ACCEPTABILITY**



# “Perception is Reality”

We can only determine an objective truth for simple empirical observations e.g.

- A clonal spruce tree grows faster than most wild spruce trees

# “Perception is Reality”

For many important things an objective truth *does not* exist and peoples’ different perceptions are equally valid.

- A forest *should* have clonal trees in it.
- Steve Lee’s wife is the most appealing woman in Scotland.

# PEOPLES' VALUE SYSTEMS

- How people perceive things depends on their value systems
- Depends on culture, background, experiences
- Split ANTHROPOCENTRIC / BIOCENTRIC

# **ANTHROPOCENTRIC VIEW (PEOPLE-CENTRED)**

- Human interests override the interests of all other species virtually all of the time
- Other species are valued according to the benefits they provide for people

## Some common outcomes of an anthropocentric viewpoint

- Forest management driven mainly by economics
- Strong reliance on scientific information
- Strong faith in technological solutions
- Modernist approach to aesthetics (modern functional things are beautiful)
- Little emphasis on locality / local diversity

## **BIOCENTRIC VIEW (LIFE-CENTRED)**

- Interests of other species override some human interests some of the time
- Other species are valued both for their benefits to people *and* some kind of intrinsic value (independent of their value to people)

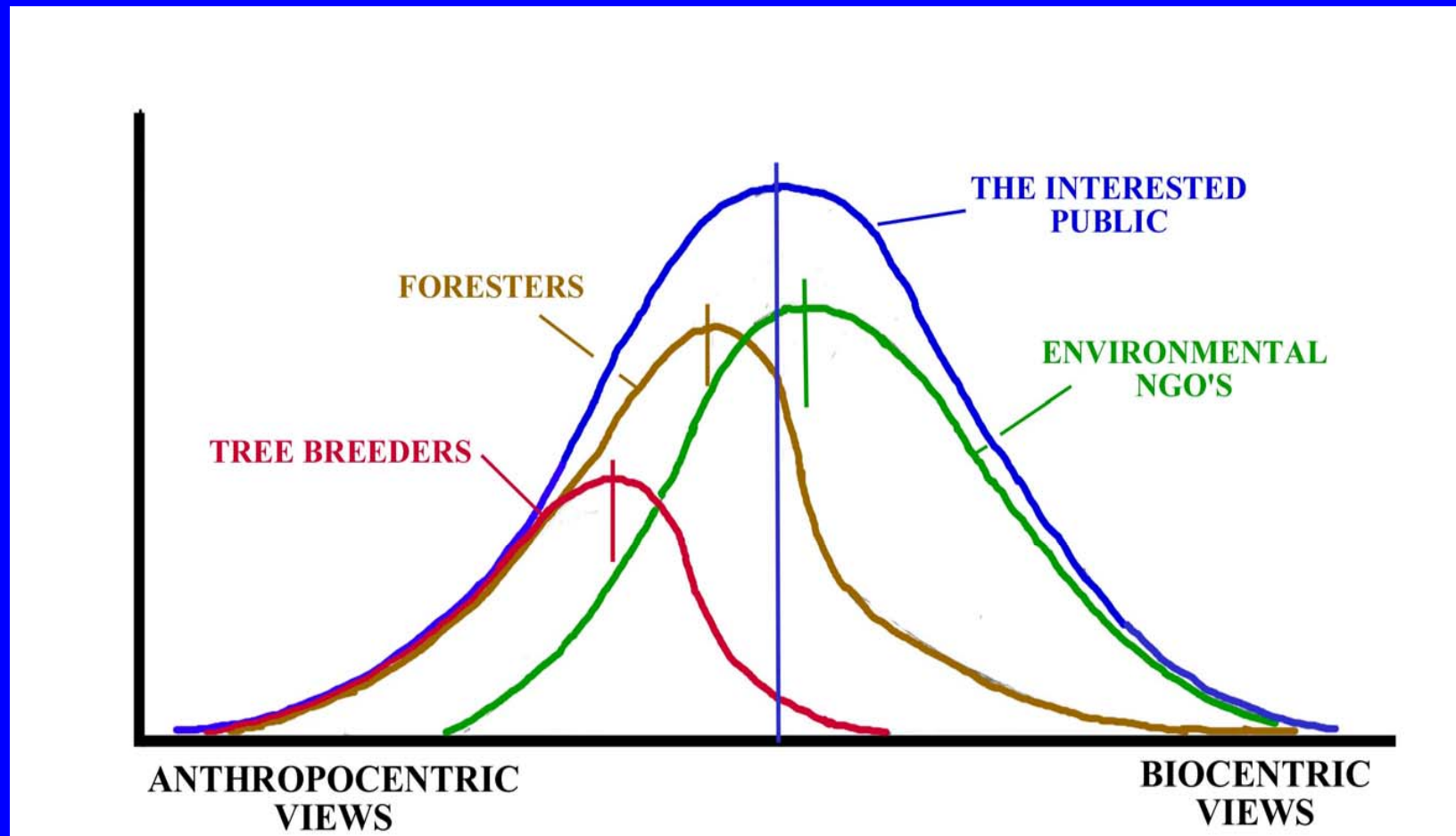
# Some common outcomes of a biocentric viewpoint

- Forest management driven mainly by environmental perspectives
- Less reliance on scientific information; more on history, literature, myth, spirituality
- Prefer solutions based on “natural”, “ecosystem” or “traditional” models
- Post-modern or romantic aesthetics
- Empathy with community and locality



Neither viewpoint is demonstrably  
morally superior - they are just  
different !

# TREE BREEDERS' VALUE SYSTEMS ??



## **FOREST SCIENTISTS ARE VALUE-NEUTRAL ???**

- Who are you kidding !!
- Scientists have strong corporate political views
- Usually allied to industry
- Scientists eager to use new technologies promising economic gain for industry e.g. GM

# ENVIRONMENTAL NGO'S

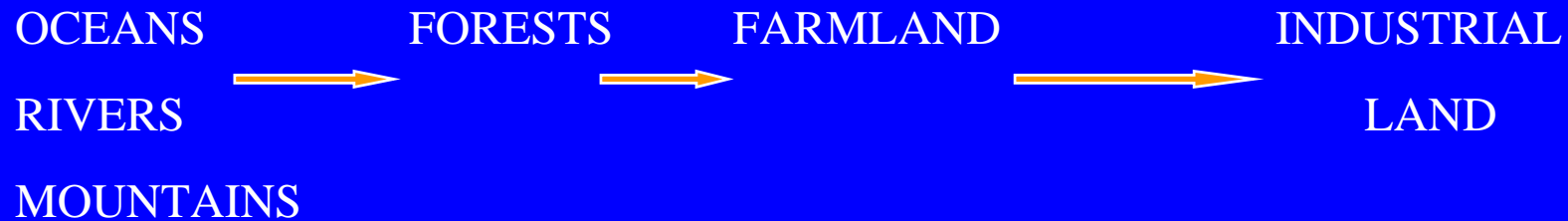
Retain trust of large sections of the public  
(urban) despite:

- Incorrectly claiming to occupy “moral high ground”
- Using scientifically incorrect claims

# COMMUNITY USE RIGHTS OVER FORESTS

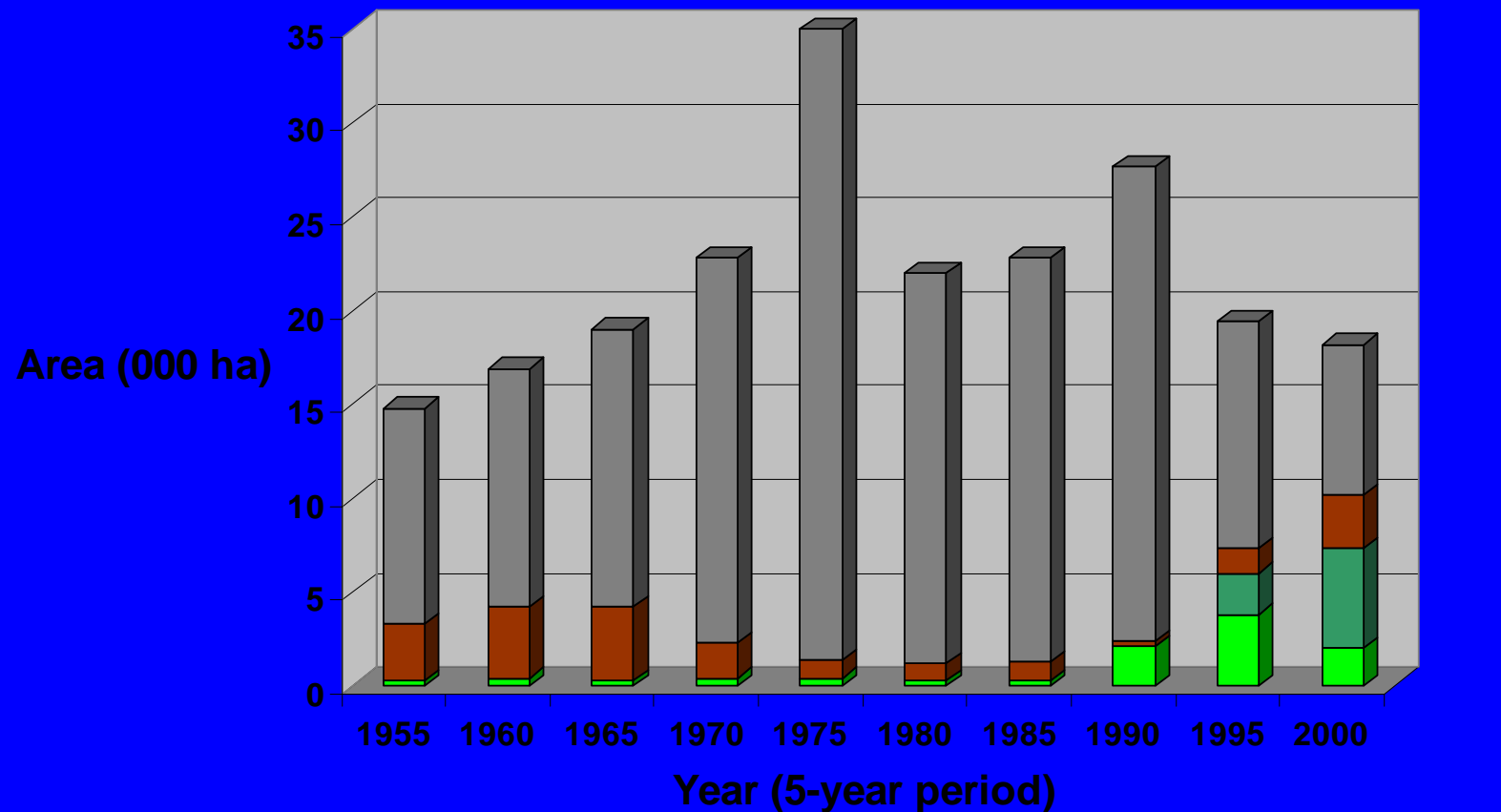
**HIGH PUBLIC INTEREST**

**LOW PUBLIC INTEREST**

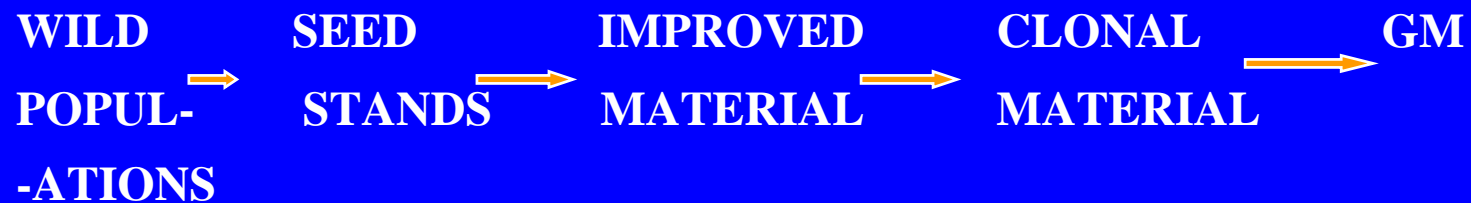


*PUBLIC HAS STRONG  
VIEWS ABOUT THESE*

# FOREST RESOURCE IN SCOTLAND



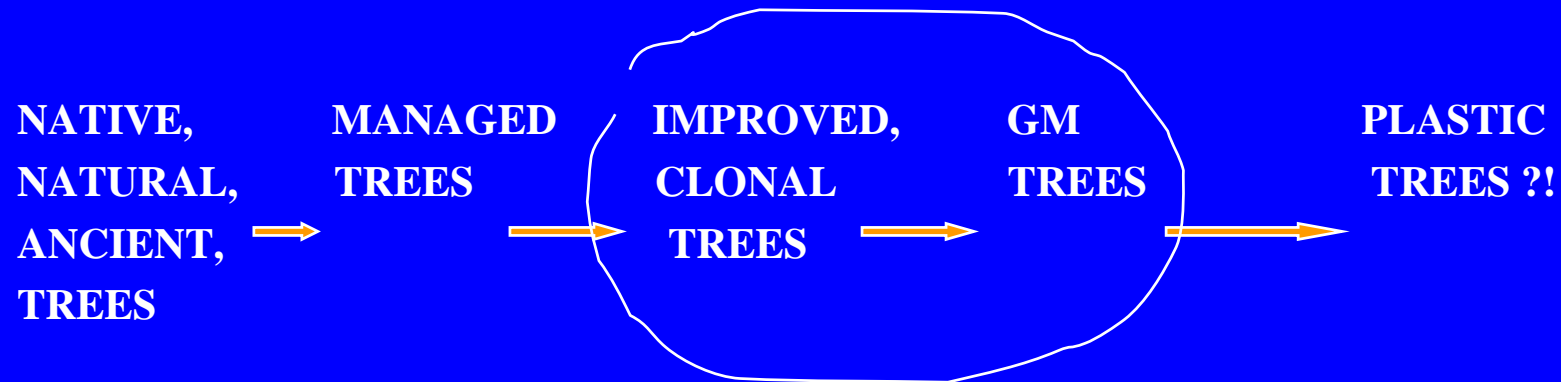
# TREE BREEDERS' FRAME OF REFERENCE



*EMPHASIS ON GAIN IN TIMBER PRODUCTION*

*UNDERPINNED BY AN ANTHROPOCENTRIC VIEWPOINT*

# ENVIRONMENTALIST'S (AND PUBLIC'S ?) FRAME OF REFERENCE



*EMPAHISIS ON LOSS OF NATURALNESS*

*UNDERPINNED BY A BIOCENTRIC VIEWPOINT*



# This gives communication problems

- Scientists mistakenly believe that supplying scientific facts will change peoples' minds
- This does not work when conflict is based on opposing value systems.....  
....and when scientists are allied to industry
- e.g. GM debate !!!

# TREE BREEDERS' RESPONSIBILITIES

- Private interests - no problems
- Public benefit:
  - governments need to be careful over what they “buy” on behalf of public
  - state subsidy increasingly seen as buying public benefit

# HARMING THE PUBLIC INTEREST

Things can be:

- *Intrinsically* wrong e.g. human cloning ?  
animal cloning ?.....
- Wrong *by their effects*

# THINGS THAT ARE NATURAL ARE GOOD ?

- Who are you kidding ? !!
- Many natural things are unpleasant and artificial things are good !
- However still a valid criterion if applied carefully.....

**So what is the balance between  
harmful and beneficial effects ?**

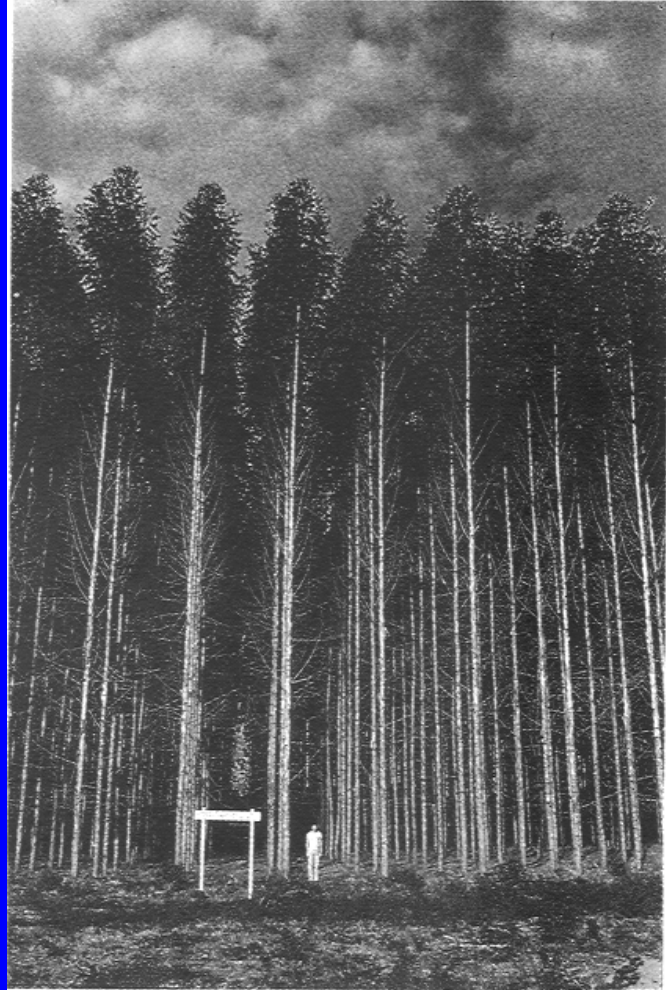
## **NEGATIVE IMPACTS**

- Loss of naturalness
- Niches for flora and fauna
- Risk of pest or pathogen attack
- Contributes to intensification of forestry
- Contributes to loss of local identity

## LOSS OF NATURALNESS

Loss of (quasi) natural components of genetic diversity

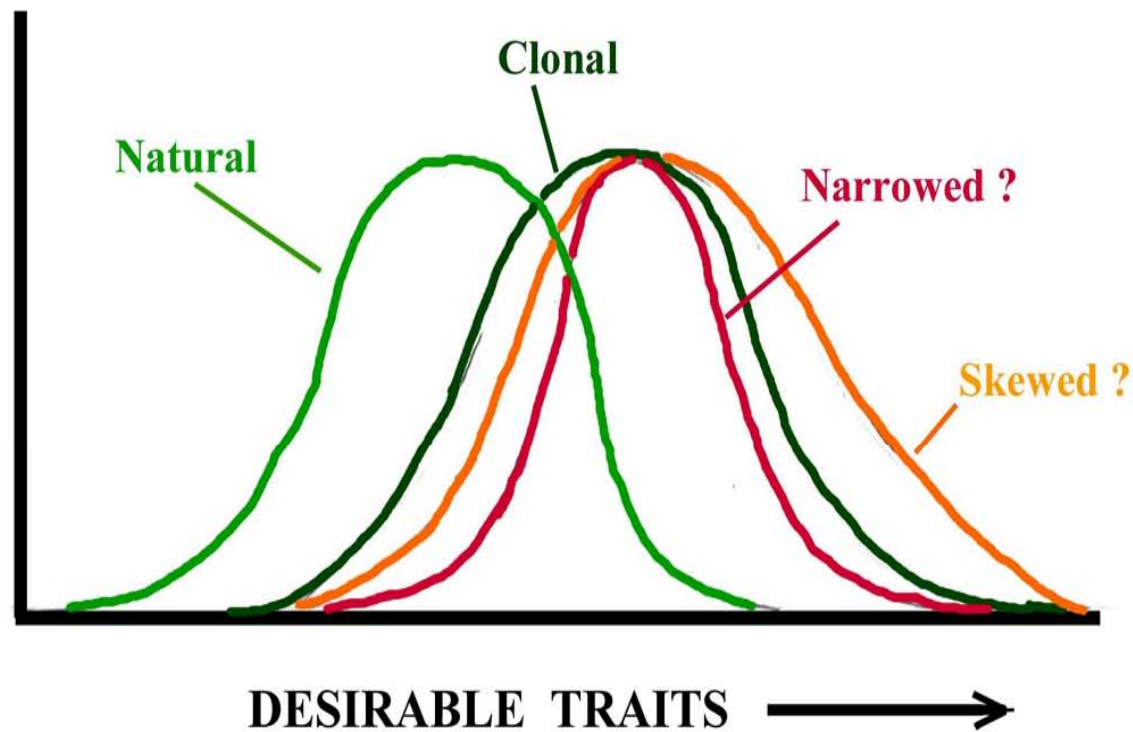
- *Apparent* e.g. eucalyptus or poplar plantations
- *Imagined* - can't see it, but someone has told you about it



Eucalyptus  
plantation from  
cuttings at year 4



# LOSS OF NATURAL PATTERNS OF GENETIC VARIATION



Considerably *increased risk* of  
undesirable outcomes unless control is  
good.....

# NICHES FOR ASSOCIATED FLORA AND FAUNA

Altered niches due to changes in tree

- morphology
- phenology
- physiology

Selection is on early rotation characteristics -  
what happens later in the rotation ?

# PATHOGEN OR PEST ATTACK

Examples which give food for thought:

- pathogen attack on a specific clone of maize
- leaf rust on poplar clones
- pests and pathogens attacking specific seed origins - i.e. they can be highly discriminating

# INTENSIFICATION

- Contributes to ongoing *intensification* of management and artificiality of forests..... when social trends favour the opposite
- Contributes to loss of *local identity* when trees across entire regions are derived from a few parents.

# CLONAL FORESTRY POSITIVE EFFECTS

- Increased timber production
- Reduced need for timber production on remaining forest area - helps to save natural forests
- Possible application to conservation problems e.g. improvement of *Quercus*

# CONTRIBUTION TO CONSERVATION PROBLEMS

Flora-for-Fauna - News

- **Wild cherries cloned to help save rainforests**

Wild cherry trees, *Prunus avium*, are being cloned by the government-funded institute Horticultural Research International, and will be cultivated at a site in Gloucestershire. Ancient British woodlands have been scoured for suitable cuttings, which have also been screened for resistance to pests and diseases, and selected for speed and straightness of growth - important qualities for carpentry. It is hoped that wood from such trees - and also from other species such as oak, ash and walnut - will be used by furniture makers in Europe, thus reducing the unsustainable demand for tropical hardwoods.

Source: *New Scientist* 18 April 1998

## CONCLUSION

- Public interest effects of clonal forestry are reasonably balanced...
- Not totally benign
- Nor “Attack of the Clones”



# PUBLIC LIKING FOR NATURALNESS AND LOCAL DIVERSITY

- Even if clonal material does not reduce variation (or even increases it) - some people will still argue that *natural patterns are preferable*
- This is not an irrational view !

## IMPACTS DEPEND ON.....

- Number of clones, their characteristics, number of copies etc..
- Scale of use c.f. seedling material
- Timescale - impacts increase over time
- Exotic or native species
- How seedling material is produced now

## WOOD FARMS ??

- Do we segregate forestry into wood farms and natural forest reserves ?
- Maybe clonal forestry has a place in less intensively managed forests.....
- Public acceptability may be greater if link between “clonal” and “intensive” was less strong

# WIDER ISSUES OF SUSTAINABILITY

- Using fertilisation and irrigation etc. to realise maximum productivity raises wider questions of sustainability

# CLONAL FORESTRY SAVES NATURAL FORESTS

You must be kidding !!

Will clonal production displace demand for slower grown high quality timber from natural forests...?

Will oversupply of industrial wood depress the market price for timber from natural forests.. ?

GM material will be mainly clonally produced.....

...meaning of “clonal” and “GM” will become conflated in the public’s mind ?

# WAY FORWARD

Need control to manage the risks

- internal i.e. EU/OECD
- external certification via FSC etc..

# WAY FORWARD

Need constructive public process:

- public and inclusive forum
- recognises peoples' different value systems
- addresses economic, social and environmental concerns
- consensus building and conflict resolution
- professional neutral arbitrator



## **SOME IDEAS FOR TREE BREEDERS**

- Convince the public that clonal forestry has *advantages for them* (not just for timber industry)
- In native species, maintain basic geographic patterns of genetic diversity
- Establish series of demonstration plantations with different levels of genetic variation ?
- Employ staff with competence in conservation
- Consider dropping terms “clone” and “clonal”

## AND LOOKING FURTHER FORWARD...

- All these issues will appear in starker form with GM forestry.....with GM material being produced clonally
- Setting up a process now will be a good practice run for GM