Current Technology in Forestry Plant Production

Teacher Overview

Students will be able to gain an understanding about the characteristics and features of technologies that are being utilised in the Forestry industry to maximise productivity, improve marketing and protect workers from injury. Students will view footage of the technologies in action and perform case studies on Cengea, Optimisation Heads, Spot Messenger and Ezy2See. As part of the lesson, students will complete a series of questions, tables and annotations relating to video links.

Stage

Year 11 Agriculture

Syllabus Links

Outcomes

A student:

P3.1 explains the role of decision-making in management and marketing of agricultural products in response to consumer and market requirements

P5.1 investigates the role of associated technologies and technological innovation in producing and marketing of agricultural products.

Students learn about:

Use of technologies in producing and marketing plant products

Students learn to:

Research and describe a current technology in plant production or marketing

Lesson Overview

Activity One:

Students will identify a list of benefits of technology in the Agricultural domain to appreciate improvements in the area. (Approx 5 minutes)

Activity Two:

Students will access a video detailing a case study of a wireless technology called Cengea that allows the industry a chain of custody of produce. The video will allow students to recognise improvements in the marketing and production of the trees. During this activity they will complete a series of short answer questions, flowchart and table to record their information. (Approx 20-30 minutes)

Activity Three:

 In the second short video, students will complete another series of case studies on technologies improving the management of Forestry. Students will annotate a diagram of an Optimisation Head and complete a table on how it is advantageous to the industry. Additionally they will complete answers on the Spot Messenger and Ezy2See technology. (Approx 20 minutes)

Resources

a) Student Worksheet

b) Online Sources (links provided on the worksheet)

- **Activity One**
  What are advantages of technology in Agriculture?
- **Activity two**
  Technology in Forestry Part One (6.40)
- **Activity Three**
  Technology in Forestry Part Two (5.44)

Sample Answers

Activity One

1. Expediting crop production rate.
2. Expediting crop quality.
3. Reducing costs of production.
4. Reducing food costs.
5. Making crops more nutritious.
6. Larger and meatier livestock.

Activity Two

1. A) Safer.
    C) More efficient.

2. Bar-coding system for logs.

3. A hand written manifest that was filled out by the log truck driver in all weather conditions. A number of errors could result from this system. These errors could result from the writing down of the data or the reading or the entry of the data. This data collection was time consuming and had to be re-entered a number of times down the chain.

Table One:

Data that can be collected from Cengea	- Volumes that are shifted per grade, per class. - How much is still to harvest on the monthly allocations. (Therefore, there are less issues with oversupply and undersupply and the managers can give the customer what they want)

4. Truck drivers no longer need to be so close to the loading area of the logs as the bar coder has a range of 8 m. Therefore they are further away and safer.

5. Flow chart should include the following points:
    ➢ All the properties of the log (length, diameter and species) are written on the log and then linked to a bar code that is stapled to the log in the forest…..
    ➢ That code is then scanned…..
    ➢ Then the logs are scanned again on the truck to determine the stock that is on the truck…..
    ➢ As the truck leaves the forest it is instantly relayed to VIC Forests so they know what stock has left the coop…..
    ➢ It is also relayed to the mill so they know what is coming…
    ➢ At the mill the logs are scanned again to confirm their arrival.

6. Each step from the forest to the customer being accounted for.

Activity Three

a) Features may include:
1. Measures the length and diameter of each log.
2. Calculates where to saw the log in order to get the maximum value from it.
3. Harvests 200 -300 trees in a day.

b) Table Two:

Feature	Description of advantage.
Records length and diameter of the tree.	This information gives the managers real time information on the productivity of the coop, what the yield is etc. Has turned a job that took a couple of months into real time (immediate).
Data is calculated from within the machine cabin.	Has benefitted the OHS of workers as they don't need to be in the field recording data.

c) Is a small GPS device that allows staff that work remotely the ability to send messages (custom, help, or an SOS) that are delivered to authorities to generate the appropriate response. It allows people to always know the location of staff.

d) The technology provides live information on the position and status of a vehicle in an area and sends assistance to a worker in the necessary conditions. It can also determine if nearby working vehicle is close to a vehicle/worker in trouble for faster help. It has the ability to send messages to authorities if needed with no interaction from the worker (e.g. if injured in a car accident).