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(a)

i) When developing new agricultural technologies, research is needed for the following reasons:

- determine whether it will be effective and profitable
- determine whether it will combat or replace old/present technology
- ensure that the 'new technology' has not already been invented or patented.
- to see if it will be ^{beneficial} ~~beneficial~~ or detrimental to the specific and targeted ~~to~~ agricultural system.

ii) When technology has just been released or identified, it can take many years to adopt to or to be accepted and used within the wider population. ~~Reasons~~ Reasons for this may include:

- Farmers may not be technologically advanced enough to adopt the new technology
- The new technology may not be utilised on certain farms as it is not necessary for that particular ~~to~~ agricultural system.
- Some farmers are set in their own ways and are used to alternative methods of ~~family~~ farming like traditional ways.
- New technologies can be quite expensive for farmers to purchase.
- Farmers may already have a technology that does a

very similar job as the new one.

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PLAN:

C.R. technology	benefits
weather	
gps	
internet	
marketing	
banking filing	
scanners	
promotion	
phones	
robotics	
- computers	
- welding	
-	

The agricultural production sector has seen many new and recent developments in computer-related technologies that are used to monitor and manage factors associated with the agricultural production. From these developments there has been many benefits that has advantaged producers with production efficiency and profitability. These benefits as well as examples have been given in table 1.

TABLE 1:

Technology	Benefit to Agriculture Production.
weather forecasting	This has enabled farmers to manage operations and monitor the rainfall for the month. This is used to help determine the growing season and best times to sow crops or carry out animal operations like shearing.

Technology	Benefit to Agriculture Production
Global Positioning System (GPS)	Precision farming relies on GPS units to navigate and establish maps to enable the farmer to utilise the paddock to its capabilities and to identify deficient/toxic areas in the paddock.
Internet.	Producers have been able to source information, buy products online and do general research via the internet. Farmers are able to monitor prices and sale specifications and manage their farming systems to suit and meet market specifications.
On-line Marketing	Online marketing like CALM - Computer Aided Livestock Markets has provided producers to sell stock an alternative way rather than to abattoirs or sale yards. This can benefit the producer as there are no extra costs of transporting, yarding etc and stock stay on property until sold. It enables farmers from around the country to 'chuck out' the stock
online banking / filing / record keeping.	Farmers are able to manage and monitor all bank records, files and records gathered from the farm and are able to keep the electronically on the computer for personal wants. Records are able to be gathered quickly and are easy to access as they are compiled in one specific area.

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<p>Scanning systems. (NLIS NLIS, pregnancy scanners, yield scanners)</p>	<p>National Identification Livestock System uses computer based technology to identify stock and keep records of stock for market, transport and producer's purposes. Pregnancy scanners allow the producer to determine if the animal is pregnant, if so how many which then can be used to monitor the stock and effectively manage stock if the dry animals are then culled or re-joined. Yield scanners can be used in the cropping industry to monitor the yield received from each paddock and to manage the operations of machinery so that chaser bins are available to offload grain and there is enough storage for grain^{grain} to be held.</p>
<p>Promotion</p>	<p>Agricultural systems can use computer related technologies to increase the promotion and awareness of the product. Radios, televisions & computers can be used to promote the product to the target community. Stud breeders of livestock use this to promote their stud and to provide details on sales, stock information and contact details.</p>
<p>Robotics</p>	<p>Robotics have become more common in the agricultural production. They have allowed for more cost effective and time saving procedures to be carried out. They have become widely used in the packaging and processing of agricultural products.</p>
<p>Mobile Phones.</p>	<p>Communication has become much easier with the development of mobile phones and smart phones. Internet access and communication has become very</p>

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Technology	Benefit to Agricultural Production.
mobile Phones continued.	effective and faster. Producers are able to get into contact with co-workers or trained agricultural professionals almost instantly. This helps to monitor the communication kept between the farmer, his/her co-workers and others associated and helps to manage the operations being carried out properly. Communication is essential to farmers.
Computer Systems connected to yarding systems and weighing Systems.	Computers are able to control the actions and movements of hydraulic yarding systems through the use of programs set up to draft animals in different categories based on a certain characteristic. Weighing systems can be connected to a computer to record the details of animals weights. This is effective in managing the weight categories and separating animals up. It also helps monitor weight of animals and identifies animals suitable to market specifications.

Many technologies including ones mentioned in table 1 provide many benefits the agricultural production. It is with these computer-related technologies that are ~~are~~ used to monitor and manage factors associated with agricultural production.