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a. i) Research is needed when developing agricultural technologies for a number of reasons, and is carried out ~~on a large scale~~ using surveys, experiments and trials. Research may be needed to find out if the new technology would work and ways the technology could be improved. It may be needed to check profitability or to ^{determine} whether there is a need for the technology.

Research can also determine the market for the product and whether there is a place for it there.

ii) Newly developed agricultural technology may not be widely adopted for a number of reasons. The technology may be too expensive for a farmer to purchase or there may be an uncertainty about whether the ~~new~~ technology is worth buying at that point in time. There also may not be enough ^{information} research about the technology for the farmer to ~~accept~~ ~~the new technology~~ willing to purchase it. If there is a technology which does a similar job to that of the new technology but ~~not~~ potentially meaning more labour

or time, a farmer may choose to keep that previous technology as that ~~is~~ is what he knows therefore not adopting the new one.

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There are many benefits of recent developments in computer related technologies that are used in agricultural production. NLIS (National Livestock Identification Scheme) is a recent development that allows the farmer to record and store all relevant information about ~~a~~ a particular animal on a computer through the use of an electronic chip in the animal's ear. This allows easy traceability of an animal in case of disease or needing to find the responsible owner. It is also beneficial in the way that it allows farmers to keep records efficiently and can relate them back to an animal easily. This has also begun to be used in conjunction with Automated milking systems. This is where the cattle ~~chose~~ to be milked and as they are entering the dairy the computer reads the chip determining from their last time of milking and how much milk they gave whether they should be milked again or sent back out to the paddock. This makes milking ~~less~~ less time consuming for the farmer.

as everything is done automatically and is also less labour intensive.

GPS is another technological development that is beneficial to monitoring and managing agricultural production. From any spot there should be close to 6 satellites that are able to pinpoint ~~the~~ the exact GPS location. This helps farmers with plant production as technologies related to the use of GPS have been developed to automatically steer tractors or other machinery to ensure straight lines and limited overlapping. The GPS can also assist with the planting of crops getting rows accurate to ~~within~~ within 2cm. This can reduce costs for seeds or fertiliser as the overlap is reduced and can ~~be~~ involve less labour and time, also reducing driver fatigue.

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