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Question 31.

a i) Research is needed when developing new technologies as it could result in whether that technology is a success or failure.

Research is essential as when you are developing new technologies in most cases involve alot of money.

As if there is no research to back up whether it will be worth while. In research people consider the budget in it being whether or not it will be worth it in the long run. You must consider the price of things when developing new technologies and who will fund the project, whether it being government or local support. Time management should also be researched when designing as some products could take years with new developments which benefit or not benefit farmer or the developer.

Research is needed when developing ~~also~~ something new should consider the purpose of the design whether it will comply with what you are trying to achieve. In your research the materials and landscape should also be considered when developing a new development as you dont want something new to wear away in a year or less. Research is needed to find the right materials suitable for the production, also the landscape and position of the developing technologies. as it will be suitable for the type of production that is needed.

Research also gives you an outline of what to consider when designing

- cost of everything of the developing technology, with labour
- how long it will take
- materials needed
- whether the new developing technologies are suitable for Agriculture use, whether it has benefits or not
- who you fund the project
- also the advantages and disadvantages of the new developing technologies along with an evaluation.
- Research is also something that backs up your development

a ii) A newly adopted technology may not be adopted around the world by others because as the technology is new no one knows whether it will either benefit them or not as people won't normally know what it is, how it works. or

People are not familiar with the new technology therefore sometimes choose not to have it in certain circumstances.

Sometimes people may not have the appropriate funding for the new project, which people don't want to pay for something that they have no idea what it's about or whether it will be a success or failure

People may not have heard about the new recent developments therefore have no idea of what's going on.

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Some people may not have the qualifications needed for that particular technology therefore have no interest what so ever in adopting it into their farm management. Another reason maybe that the time in order to take to build or create the new development is way to long and farmers prefer to have something that they are used to which is manually labour as they might believe that the time it would take to build it they could of been earning it.

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B) recent developments in computer technology that are used to monitor and manage factors with Agricultural production are seen to come of an advantage to farmers by reducing cost in labour as now with computer technology farmers don't need to have that many employees working at a time. A reduction in labour, better farm management in all areas around farming from plant production to animal health due to newly designed monitoring systems. More accurate measures of things including live weight, milking percentage, precision farming. Some new recent developments such as the Global Positioning Systems (GPS) will help benefit farmers in plant production as these new systems can locate the best positioning for the growth of these plants, along with location it could also determine certain weather predictions which had determined certain seasons in order for the farmer to have an early preparation for either heavy rain or storms in advance. Coming the awareness of this new technology having its benefits also comes its disadvantages as this technology sometimes gives inaccurate measures of landscapes and predictions causing problems with the farmer, they are hard to obtain and can sometimes cost a lot of money. Considering both of advantages and disadvantages (GPS) overall benefits farming in ways as it will keep the awareness level

up, helping the farmer manage his land more appropriately, but then again can give inaccurate measures.

Farmers now have invested in the use of precision farming with the farming side of things having multiple benefits.

This technology allows the farmer to plant multiple crops at a certain time without growing on top of each other being ^{centimetres} ~~metres~~ apart from each other. This is an advantage to a

farmer as the farmer can have multiple crops growing at a certain time increasing his profit margin. Another would be with such an accurate measure the need for labour is almost reduced to half as farmers just put in the coordinates and spacing into the computer then it is performed.

Disadvantages of using this technology would be that it is very expensive and hard to obtain as so many of the farmers are waiting then, becoming more popular, also hard to maintain with regular checkups needed in order to maintain the data and to operate

Overall benefits the farmer as it gives and stores an accurate planting regime for the farmer and benefits the farmers economy in the long run. Although getting your hands on one is very hard to obtain and manage with regular checkups needed

Farmers have also adopted new monitoring systems with the use of smart gates coming into a data base with regular milking intervals for cows allowing the farmer

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to keep a close eye on their cows lactation periods. as on the database it comes up with cows that haven't had their milking or what not. with the use of the smart gates allowing a steady of flow and a constant rate at which cows come in and go out allowing cows to be regularly checked upon their lactation periods by having their ID number sent to the data base to keep a track record along with this monitoring system farmers can also have an accurate reading of how many litres of milk out of each quarter of the udder allowing the farmer to keep on record the percentage each day the milk produced by each cow. will also come up and separate the milk from the others if there is an infection seen or a parasite so it separates from others to not infect the milk, causing a significant loss of money to the farmer if it did happen.

disadvantages for this monitoring system would be the cost of running the operation also with the development of the system, not only money but there is a possibility of infecting the milk as the monitoring system may miss infected milk, along with this concern electricity bills also become higher and there may be a miss communication between cows and certain labels causing the data base to be corrupt causing a lot of loss in the farmers business and economy.

Overall the monitoring system benefits farmers as it reduces labour costs of others since the smart gates allow for

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an easy access for the cows along with precision almost every time accurate milk lactation when cows are due or have an issue with its milk resulting in the farmer to have better efficient milk along with production.

Farmers have now adopted this technology of ANOVA 'analysis of variance' allowing the farming process to become an accurate reading as ANOVA is about randomisation and replication of collection of data as it allows the farmer to view and get an accurate measurement/reading of an experiment to allow the variance between crops or animals so the farmer can choose the best suitable farm management technique or variety to have in production for a better yield resulting in high levels of income.