Farm Management

Handout 10

Data Collection

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Let's look at each in detail:

Type of data	Correct Method of collection	Why we need to collate this kind of data
Pests data	Sampling within individual fields is also done objectively. Surveyors strive to enter a given field without letting field conditions influence their choice of entrance location. Once in a field, a pest is sampled repeatedly along a line with fixed spacing so as to try to achieve an accurate estimate of the pest conditions in that portion of the field. Sampling is done by sweep netting, trapping, which can include but is not limited to sticky traps, light traps, pheromone traps, trap crops etc., inspecting individual plants, inspecting a certain unit of the ground, or by other means depending on the crop and the target pest. Typically a surveyor will employ multiple sampling methods in an individual field and will be estimating numbers of multiple insect species as well as the presence of disease or weeds.	A Pest Report can be used to decide when to scout and what to scout for, as well as to decide when or if a treatment should be applied. The recording of such data is important for interpretation of the findings. The grower/farmer/or person interested in the data, would like to analyse it to monitor pest and predator population densities in the field, which may have an impact on yield and require some kind of control measure.
Diseases data	These reports are normally a bit more complicated than pest reports. They normally include information on: THE TYPE OF CROP There are specific crops with very specific disease vulnerabilities. Accordingly, we will try to determine whether our farm's crops are more or less affected than average. THE TYPE OF DISEASE Only diseases that can cause us to lose our crop of that can have a financial impact on our crop are reported on. PATHOGEN This is the scientific name of the organism that causes the disease in the first place. WEATHER STATION AND SENSOR LOCATION The location of weather monitoring	These plant disease occurrences should be recorded and combined over a time period, and can be used to predict the timing of diseases, e.g. fungicide applications. However, exercise caution when using these data sheets because disease control in the field depends on many additional variables, some of which may not be included in any one report. Important variables include a fungicide's activity, such as whether a material is protective, eradicative, or curative, as well as fungicide coverage and the time intervals between applications. Other variables that might affect disease control include additional environmental variables that might not be included in the model, host phenology or growth stage, and pathogen virulence.

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	equipment relative to the crop canopy. The sensors that monitor the environmental variables are important, and they should be located within the crop canopy in order to give accurate information. INPUT VARIABLES Measured environmental variables are recorded by automated weather stations or other types of monitoring equipment. Variables typically monitored include temperature, precipitation, relative humidity, and leaf wetness, wind.	
Agro-chemicals data	This type of data report should include information such as wind speed, humidity and temperature, every fifteen minutes, types of chemicals applied. Reasons for the application, results of the application. It is important to compare year on year information and statistics. It is also important to have regular stockholding and stock rotation reports, as agrochemicals do not have unlimited shelf life.	It is important to have this type of data recorded and compared with previous records, in order to plan an effective spray program that will ensure that the crop yield and quality is optimum (at its best), without applying chemicals that will harm the environment, or limit the economic lifespan of the crop.
Crop data	This type of data report normally includes a list of the following: • The type of crop and cultivar. • Type of topography and soil the crop is planted on. • The soil preparation and fertilisation actions that was affected. • The spray program and quantities of agrochemicals, herbicides, pesticides and fertilisers applied. • Plant manipulation actions taken. • The grade and quality of the crop yielded. • The tonnage of the crop yielded. • The price per ton income for the crop. • The profitability of the crop. • Notes on Economic and External factors that might contribute to the overall crop yield, quality and	It is important to have this type of data recorded and compared in order to plan and revise your management programme for effective, cultivar selection, to take note of changes over time, for soil preparation actions, agrochemical application programs, plant manipulation and marketing actions that will ensure that the crop yield and quality is optimum (at its best), whilst ensuring maximum profitability.

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	profitability. This data report should be compared season on season and year on year.	
Stock control data	It is important to have regular stockholding and stock rotation reports, as agrochemicals do not have unlimited shelf life, and some chemicals can be de-registered in time, due to a proven negative effect on the environment.	It is important to collate stock data in order to identify problems with stock, compare expiring dates, plan effective, agrochemical application programs, whilst ensuring optimum cash flow and for audit purposes.
Economic indicator data	These include indications of items such as the Rand vs Dollar exchange rate, the price of oil, the price of gold and many more.	An economic indicator is simply any economic statistic, such as the unemployment rate, GDP, or the inflation rate, which indicate how well the economy is doing and how well the economy is going to do in the future. This will influence all our decisions in terms of crop planning, cash flow and help us to plan strategically for our commercial farm.
Maintenance information	Service technicians perform routine maintenance checks on diesel engines and on fuel, brake, and transmission systems to ensure peak performance, safety, and longevity of the equipment. Maintenance checks and comments from equipment operators usually alert technicians to specific problems. With many types of modern heavy and mobile equipment, technicians can plug diagnostic computers into onboard computers to diagnose a component needing adjustment or repair. After locating the problem, these technicians rely on their training and experience to use the best possible technique to solve the problem. If necessary, they may partially dismantle the component to examine parts for damage or excessive wear. Then, using hand-held tools, they repair, replace, clean, and lubricate parts as necessary. In some cases, technicians calibrate systems by typing codes into the onboard computer. After reassembling the component and	This will influence all your decisions in terms of crop planning, cash-flow and help you to plan strategically for planting, pruning, harvesting and transportation / distribution actions. In order to make decisions on whether to replace equipment, repair equipment and to take note of the possible causes of maintenance problems, it would require comparison and integration of the findings on this kind of data. Whether it be maintenance on machinery, computer technology, or maintenance on farm equipment such as irrigation pipes, keeping track of problems and the state equipment is in, will be reflected in the running costs of such a farm or operation.

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	testing it for safety, they put it back into the equipment and return the equipment to the field. Many types of heavy and mobile equipment use hydraulics, to raise and lower movable parts. When hydraulic components malfunction, technicians examine them for fluid leaks, ruptured hoses, or worn gaskets on fluid reservoirs. Occasionally, the equipment requires extensive repairs, as when a defective hydraulic pump needs replacing. In addition to conducting routine maintenance checks, service technicians perform a variety of other repairs. • They diagnose electrical problems and adjust or replace defective components. • They also disassemble and repair undercarriages and track assemblies. • They weld broken equipment frames and structural parts, using electric or gas welders.	