FIELD DAY ON PROPERTY OF MR F. R. CLARKE, LEVELS

Some 650 members attended the field day on the property of Mr F. R. Clarke, Levels, and were welcomed by the president of the association.

During a trip round the farm with periodic stops at points of interest selected speakers gave short addresses.

Mr Clarke, who was the first speaker, discussed his method of farming as follows:—

This is just an ordinary downs farm. It has the same history of ups and downs that any place in South Canterbury has had. When I took it over in 1934, it had grown a lot of crop (there was nothing much else to grow in those days). I took it over from the mortgagees as so many other places were taken over about that time.

The first year I had 70 acres of wheat and 400 ewes and there was not much grass except creeping fog and yarrow. I started off with an old T.20 tractor, a few implements, and not much idea of what to do next, except go on, as everybody else was doing, hoping for the best. For the first 2 or 3 years I grew turnips, rape, and wheat and fattened a few lambs, without making much progress in getting the ground clean or getting good grass. It was not until I got further behind by buying a T.D. 35 that I really started to do something. I am firmly convinced that one of the best things I ever did was to bring that crawler (which I still have) on to the place, even although at the time one heard very little else than the phrase over-mechanisation. The next step in the right direction was when I put the first paddock of Certified perennial ryegrass in. I can safely say that from then on I have not looked back. Putting in that first paddock was a bit like buying the crawler. I felt that if I was going to be in, I might as well be in "boots and all." I could not see the sense in trying out a bushel or two to see how it went. I thought that these Plant Research Station chaps would not make a song about nothing. So that's how I started seed growing, and from then on it has contributed the

greater part of the return from the place. For. the last 10 or 12 years I have grown between 2500 and 3000 bushels of perennial ryegrass each year. Last year the' average yield was 52 bushels of machine-dressed seed to the acre with a germination of 92 per cent and a purity of 99.6 per cent. The year was not a good one for ryegrass in South Canterbury. The year before that I averaged 59 bushels of machine-dressed seed. With these heavy crops of ryegrass the clover establishment is not good. Last year I only had 12 sacks of machine-dressed white clover seed ; the year before I had 72 sacks. I have also grown Italian ryegrass, red clover, and Montgomery red clover for seed. You will notice a plantation of pine trees running through the middle of the farm. I used to grow Italian and red clover on one side and perennial and white on the other. This was when I first started. Now I grow nothing but perennial and white.

I have grown about 50 acres of wheat every year and for the last 10 years have averaged about 55 bushels per acre. During the war I grew linen flax for fibre and for seed.

I find that under heavy seed yields the pastures which are seeded in the first and second years are best left down only 4 years.

I sow them in the autumn in February and March, using 30lb. of perennial ryegrass and 31b. of white clover for those paddocks I am going to seed. Each year I sow between 40 and 50 acres on a fallow after wheat. These areas are grazed until the end of October and then shut up for ryegrass seed. Dependent on the season, one or both of the 2-year paddocks are shut up for white clover. When the paddocks are ready to cut, generally in January for ryegrass and late January and February for white, they are cut with the mower and after lying in the swath from anywhere between 4 days and three weeks, in the case of white clover, they are picked up with the header. I have a swath lifter which is necessary for handling white clover.

After two seed crops the paddocks- are ploughed in at the end of their 4th year for turnips or rape. I use about 70 tons of lime each year on the second year pastures. I have never topdressed with super, but have used sulphate of ammonia, nitro lime, and nitro phosphate on the first-year ryegrass paddocks for seed.

You will see from the plan of the place the lay-out

of the paddocks, the acreages of crop, grass, and fallow, and the sheep numbers. The most important contributor to the success is the fallow land. No grass is ever put in except after a 12 months' fallow. This may seem an expensive way, but once the first year is over it is automatic. You will probably say to yourselves that I have not enough sheep, and this year you would be right. I am saving 60 acres for seed this year, and I am running only $8\frac{1}{3}$ sheep to the acre of grass at present. This year it is not enough ; some, years it's a few too many.

I breed my own ewe hoggets. These and the ewes have averaged over the last 8 years $10\frac{1}{2}$lb. of wool at shearing and have crutched over a pound as well. I fatten all the wether lambs and have bought in lambs to fatten. This year I put some of the older ewes to Southdowns. The ewes are kept until they are 5 years old. Last year to increase the flock I bought another 150 ewe lambs. This autumn I intend to carry 800 ewes and 500 hoggets.

I have been breeding my own replacements for a long time. When I first decided to do this I asked the opinion of quite a few. At that time it was almost unheard of; we were still in the 1 to 2-year ewe age. Practically everybody I asked was against it. Now nearly everybody is doing it. I get more satisfaction out of my ewe hoggets than I do out of anything on the farm.

Last year I cleared part of the plantation that runs across the top of the farm. This land has never grown crop and I sowed it down in a full mixture of pasture seed and I am keen to see how it behaves.

I have a full range of implements and plant to run the place. A crawler TD35, a Model M International wheel tractor, a David Brown, and an Allis Chalmers header. I think the aim for every farmer is to make his farm self contained and if he needs help, get a good man and stick to him.

I know you will find plenty to criticise. I hope you will see something that may be of use to you.

The next speaker was L. W. Blackmore, who discussed a series of plots that had been sown 8 weeks previously to show different methods of establishing pasture. The most outstanding feature was the excellent strike and coverage of both grasses and clovers when sown with $3\frac{1}{2}$in. centre drills. Other methods such as broadcasting and drilling in, 7in. drills were not as satisfactory.

In a paddock sown with cocksfoot, white clover, and subterranean clover R. H. Bevin discussed special-purpose pastures for dry land where summer production is required. He pointed out that plants such as cocksfoot, lucerne, *Phalaris tuberosa*, and subterranean clover in different combinations not only produced feed at this time but were also more resistant to grass-grub attack.

At the next stop (a water trough) W. C. Stafford gave an outline of the Downlands Water Supply Scheme. For many years intensive farming on the downlands was limited by water supply, which had to be provided by individual farmers either by dams or by carting from the Opihi River. The Downlands Water Supply Scheme was conceived by the late Mr T. D. Burnett, M.P. The following statistical information was given by Mr Stafford:—

Catchment Area: 42,000 acres; altitude up to 3000ft.

Area within gazetted boundary: 137,635 acres.

Area Watered: 135,600 acres; 960 houses.

Main Dam: On Tengawai River at altitude of 1070ft. Height of dam 30ft.

Main Pipe Line: 13in. diameter, capacity 856,000 gallons per day. Final reticulation by ¾in. galv. pipes. Approximately 700 miles of pipes in scheme.

Cost of Pipe and Laying: 13in. mains 108s. 10d to 138s. 5d. per foot, depending on locality, pressure, and type of pipe, down to 5.450d. per foot for ¾in.

Six Reservoirs:

Claremont	1,400,000 gal.	920 ft. alt.
Sutherlands	250,000 „	900 „ „
Clelands	400,000 „	790 „ „
Kakahu	600,000 „	725 „ „
Pareora	600,000 „	785 „ „
Pleasant Pt.	250,000 „	450 „ „

Costs of Installation: A free trough position for every 100 acres or part of 100 acres. Farmer paid $2 7s. 6d. for trough, and connections, ballcocks, etc., brought total cost of installed trough to $3 14s. 3d.

Any extra troughs were charged at £2 7s. 6d. for trough plus fittings and extra pipe required to connect to supply lines.

Domestic Supply, Water delivered to Farmer's Tank: The only cost of installation *was* for the cost of ballcock and connections. All supply points were

through ballcocks, because the whole scheme was based on a regulated flow through the control of the water by these ballcocks.

The estimated consumption of water was at the rate of 4 gallons per acre and 200 gallons per domestic unit every 24 hours.

Besides water for stock and domestic use, the D.W.S.S. supplies water for sheep dips and milking sheds. In Pleasant Point township, which has its own reservoir, hydrants are placed at strategic points for fire fighting.

Annual Charges: These charges are collected by the County Councils concerned, namely Levels, Geraldine, Waimate, and Mackenzie.

Domestic	£3 15s. Od.
Land	9d. per acre.
Cow sheds	£2 10s.
Dips	15s.
Hotels	$5.

In a young pasture which had been closed for a seed crop P. D. Sears stressed the desirability of raising fertility by the fallow and by the application of nitrogenous fertilisers. He suggested that the seeding rate of ryegrass could be reduced and that of the clover increased to obtain the most rapid establishment of the clovers.

Several years ago Mr Clarke cleared an area that had been planted with trees on land that had probably never been ploughed. Mr Bevin in discussing the resulting pasture pointed out that over the years the fertility of much of the downlands had been severely depleted by cropping. This area had, however, been brought into pasture without the usual intervening period of fertility depletion. This was reflected in the quality of the turnip and rape crops that had been produced and the high carrying capacity of the present pasture. It was pointed out that the main effort in downlands farming was directed toward the building, up of the fertility which had been depleted-by cropping.

The next speaker was E. Bruce Levy, who addressed the gathering in a first-class two and a half year-old ryegrass and white clover paddock. He said he felt that an honour was done him by asking him to speak on the sward which was in front of him and still first-class pasture. He recalled the reversion, of swards in the 1920's and early '30's and mentioned the doubting Thomases of that time. He then re-

viewed how the improvement had been effected and made suggestions.

1. There had to be a high Governmental appreciation of the work before us. The lead must come from the high political heads in Wellington if higher production is to be achieved, 2. There must be a marked build-up in agricultural extension service in the country, as it had been built up in Timaru, for example. He said that the staff numbers were too weak today and before we can achieve our aim of greater food production this must be improved. 3. That collaboration of interests in the development of the seed industry and the development of grassland had to take place (such ancillary interests as the seed trade, the banks; stock agents, all of which were a power **should not be ignored).** He stated that the seed trade should think of doubling their output of seeds which were so well suited to Australia, U.S.A., and the United Kingdom. Financial help should be brought in to increase stock numbers. Withoutthis, development is stifled and the conversion of much of the grass into dung and urine is not possible. The topping of grass paddocks or incomplete utilisation by stock tends to defeat this object.- 4. He- pointed out the drain of fertility which had-taken place in the adjoining- paddock as a result of a heavy ryegrass crop-a very obvious depletion of nitrogen. He made the point that the more we can approach maximum utilisation of grass eaten in *situ* the better our grasslands will become. Mr Levy considered we should make the maximum use of the brains of the farming industry itself.

In discussing the place of cropping in farming J. W. Calder described the reduction of the cropping acreage in South Canterbury, which had fallen by 40 per cent., equalling 13,000 acres, but this gave an equivalent increase in grass area. Associated with the above are -the yield of wheat 30 years ago, 33 bushels per acre, whereas now the average is 38 bushels per acre. This represents a definite increase in soil fertility. In the early years of Mr Clarke's farming, wheat yielded 40 bushels per acre, but his yield is now 55 bushels per acre. Pasture improvement carried out by many farmers means that now paddocks have to be ploughed to grow crops they want to grow. This is revolutionary. Prof. Calder discussed the crops growing on the farm, indicating that the wheat crop was particularly good, the land for the rape crop was in good heart, and that the pea and lin-

seed crops were very good, with. an absence of weeds. Crops out of good pasture had solved one of the problems. that of weeds, which was associated with the old cropping era. The practice of having land 4 years in pasture and 3 to 4 years in crop was one of the most efficient and satisfying forms of agriculture that was known to the speaker,

G. W. McPherson discussed the irrigation of the light lands of Canterbury and outlined the work done at Winchmore on research and on the dairy research unit and on the mixed farm. He predicted a great future for grassland farming on the light lands of Canterbury under irrigation.

P. W. Smallfield summarised the salient features of grass farming on downs country and expressed the thanks of the association to Mr Clarke for the opportunity to view his farm and discuss his management methods. The speaker drew attenion to the shifts necessary in grassland farming management under low and uncertain rainfall conditions and emphasised the following points :—

The carefully planned and executed crop rotation to provide cash and fodder crops and pasture renewal; the flexibility given to pasture management and utilisation through seed saving and the composition of the sheep flock; the provision of ample drinking water for livestock and the use of irrigation on a limited area of flat land; and above, all the continued effect of all these factors in building up and maintaining a high level of soil fertility.