

Mutual Help

If you want to know ask. If you can give information do it now. If you don't agree with replies say so. Remember that with knowledge we get by giving. This column will be devoted to an earnest effort to help producers to help themselves and one another in solving the problems which constantly come before them. The Agricultural Editor desires to know what problems are exercising the thoughts of our farmers, stockmen, and dairymen, fruitgrowers, home gardeners, poultry-keepers, and so forth, believing that questions one is ready to ask many others are thinking about or have thought about and have solved, or partly solved. Our subscribers are cordially invited to ask questions and we will give the information required if it can be procured. One reader is then urged to supplement our replies by personal experience wherever possible. Don't wait for the other fellow to ask. Don't neglect sending in your comment or experience at once, but just dot down the idea while it is fresh and send it along. Put your questions concisely, and number them separately. Explain any conditions of soil, drainage, symptoms, etc. Carefully write on one side of the paper only. The name and address must be given, but not necessarily for publication. Address all letters, Editor, MUTUAL HELP "WESTERN MAIL," PERTH. It is well to bear in mind that Editors, Managers, Secretaries and other officials may change, go on holidays, or become ill; but the OFFICE continues. Therefore, do not address an editor by name unless the business is personal.

FRONT V. BACK WHEEL DRIVE OF TRACTORS.

"Maintenance," writing in August, said:—I thank you for your reply to my query "Why do tractors have the power drive on rear wheels," and was also pleased to see another letter from "W.H.G." Manjup, on the subject, showing an interest in the matter. I have obeyed your earnest adjuration "to think," and after all my thinking I hope you won't mind me saying that you have not convinced me that a tractor should not have its power drive on the rear wheels, but on the front ones, at any rate theoretically.

You advise experimentally pulling a loaded barrow, and say I would not pull it half a chain, but turn round and push. I contend that this is only because it would be much easier to balance it when pushing. My experience is that when using a truck, which has two wheels and therefore does not need balancing, that I always pull it, when loaded and using it on soft ground. I have a good deal of this work to do at harvest time when putting bags of wheat on the wagon loader, so I feel sure of my point.

We have a book called "Yonah on the Horse," which I believe is a standard work, and in the part dealing with draught, Mr. Yonah says it is almost indispensable to incline the traces downwards when pulling a wagon over a rough road, and to my mind the same principle would apply to a tractor pulling a plough over a paddock with stumps and rough ground to surmount.

I felt glad and confirmed in my idea in seeing, shortly after writing my letter to you, an announcement of a tractor which is shortly to be introduced into this State, which is of the three-wheel type, two of the wheels being in front and which has the power on all three wheels, so that two-thirds of the drive is on the front wheels, and as this tractor has been a great success in Great Britain, the idea is evidently practical.

Of course I am not foolish enough to think that tractor designers have not considered this point and for the great majority of tractors to be rear wheel driven shows there must be some substantial reason for this, and on doing some more "thinking" about this, as so earnestly urged by you, sir, I came to the conclusion that it is probably because a tractor often has to have its load, such as a plough, hitched to one side to enable the tractor to travel on the firm unploughed ground, and the weight being over the rear wheels enables it to hold its course, and also, as you suggest, it is a simpler matter to steer the tractor as they are usually made at present.

Comment by Mutual Help Editor.

The above letter came to hand during the printers' strike, and with a good many more things was put aside. Will "Maintenance" please accept this explanation of why the letter has not been published before?

I hope that no one will think that I intended to argue with "Maintenance," and I do not intend to do so now. I did not say that the back wheel drive was better than the front wheel drive. What I did was to suggest the reason why tractors and motors are driven from the rear, and to point out that to drive from the front would involve serious difficulties with steering. There is one point in my reply which seems to have escaped "Maintenance," but he has himself drawn attention to it in another direction when he refers in the above letter to the harnessing of a draught horse. The reason why he can exert more power in pulling a wheelbarrow or a truck over an obstruction than he can when pushing is closely associated with that problem of harnessing a horse. It is all a question of leverage. When he is pulling he can plant his feet firmly on the ground, lean back and he gets a leverage which he could not get so easily when he is pushing.

Something of the same principle applies in connection with the horses drawing a plough over a boggy patch of ground. If the horses can get on to firm ground, they can exercise leverage, put their weight into the collars and draw the plough or implement out of the bog. Even when the horses are working on the boggy ground, provided they can get a firm footing under the mud, they can draw the implement or wagon through the mud. If, however, they cannot get a firm leverage below, they flounder, and they are of no greater use than a motor which, exercising a tremendous power, can make no progress because the wheels simply spin. "Maintenance" will remember that in traversing difficult tracks, the people endeavour to have two cars travelling together. If one car should get into a bog the other car can haul it out, and when there is only one car, the wise driver provides himself with a rope which he can fasten on to something firm in front of him and use the power of his engine to haul himself out.

The point I wish to emphasise is that the power depends upon having something to haul or push against. In the case of the railway engine or an ordinary motor car, that something is the weight pressing on the ground, so that the friction will enable the engine to exercise its power. It is known that the sellers of tractors usually make two statements: they give the power of the

tractor on the drawbar, and the power against a friction wheel, and the one is very much greater than the other. The heavier the tractor, provided the ground is firm and suitable for adhesion, the greater is the power which it can exercise in drawing a plough or any other implement—but, as "Maintenance" suggested, I am not an engineer.

MISSING PLANTS IN POTATO FIELDS.

It is usual to look upon "misses" or "blanks" in a potato crop as an entire loss; but such is not quite the case. The New York Agricultural Experiment Station has investigated the matter and the results are given in bulletin 470 of December, 1919.

At planting time, each of 360 potato tubers was divided lengthwise into two equal pieces. The 720 seed-pieces so obtained were planted 15in. apart in the row in groups of four with blank spaces of 30in. between groups. In other words, every fifth hill was a missing hill. Each group of four contained the two pairs of seed-pieces from two tubers. Hence, one member of each pair of the resultant plants adjoined a missing hill. The difference between the yield of this member (the exterior plant) and the yield of its mate (the interior plant) was taken as the measure of the influence of the missing hill.

Data were obtained from 351 pairs of plants. In weight of total yield the exterior plants outyielded the interior ones by 23.2 per cent, on the average. Accordingly, the answer given by the experiment is that, under such conditions as obtained in this experiment, the loss from missing hills is offset to a considerable extent by the increased yield of adjoining plants. In the case of a skip consisting of a single missing hill the two adjoining plants (one on either side) together make up 46.4 per cent, of the loss in total yield, and a little more in yield of marketable tubers.

As a sort of check on the experiment, an attempt was made to determine the magnitude of the variation in yield between the two members of a pair of plants from the same tuber when grown under conditions as nearly parallel as they could be made. For this purpose pairs of seed-pieces similar to those used in the experiment proper were planted in continuous rows without blank spaces. Data were obtained from 85 pairs of plants. In different pairs the difference in total yield varied from 0 to 66.7 per cent, of the mean yield of the two plants of the pair, the average being 20.7 per cent. Such a wide variation in yield between plants under supposedly parallel conditions indicates that there are factors having a very important bearing on the yield of potatoes which are either unknown or not estimated at their proper value.

MILK MAKES SOUND TEETH.

Dr. Percy Howe, at the head of the research work in the Forsyth Dental Infirmary, Boston, Mass., where the teeth of nearly 100,000 children are examined annually and treated, states:—"The mineral salts and vitamins found in milk are indispensable to sound teeth in children."

Dr. Howe has demonstrated this beyond question by experimental research. Dr. Harriet Fulmer, in charge of social service work in Cook County, Illinois, reports that fully 85 per cent, of the school children have defective teeth. She states that if these children had used plenty of milk, more than 50 per cent, of them would not have had this trouble with their teeth.

Dietary scientists and food authorities state that no single food is as valuable as milk in developing and maintaining sound teeth. If these mineral salts and vitamins found in milk are not supplied to growing children in abundance—and this can be done only by the liberal use of milk—the jawbones, which are the framework supporting the teeth, do not develop properly and the teeth themselves protrude without proper support and are imperfect in character, irregular in shape, soft and porous, and begin early to decay.

Once this defective frame and deterioration in teeth begins, as it always does in the absence of the food elements necessary to build and maintain them, the child has started on a career of ill-health, and his future life is impaired and seriously affected.

Parents are apt not to realise the vital relationship between sound, well-placed teeth and good health. Imperfectly masticated food impairs the digestive organs, interferes with proper assimilation of food, and thus directly impairs both growth and health.

DINGOES AND BELLS.

F. E. Jones, Hampton Hill Station, Bulong, writes:—Re Pommy and his idea of bells frightening dingoes (or dingo mongrels), bells make no difference. We have a mob of about 300 goats running here at the homestead and between them they carry 30 bells, a mixture of sheep and horse bells. As soon as a dingo comes in our district he attacks the goats when out feeding and continues to do so until we poison or trap the attacker. The only difference between a goat with a bell and one without, is the one with the bell is bitten in the hind quarters and flank instead of the throat. Hoping this will be of use.

POISON FOR BLOWFLIES.

Bayley Bros., Denmark, write:—Will you please repeat method of making arsenic poison for blowflies?

During the recent heat wave we were more troubled with blowflies at our house in Guildford than ever I remember in the 17 years I have been in the State. We did nothing, however, for after a day or so the flies disappeared almost as suddenly as they had come. Had they not abated, I intended to make traps out of heroseene tins, which are very effective. The heroseene tin is cut into two portions, the bottom portion making a tray about 3in. deep. On the upper portion about an inch from the cut a piece of gauze is fastened across, which prevents the flies getting down below. We then have the top of the tin with the gauze and entrance and the second portion with gauze bottom through which the flies cannot get, and the tray with the meat underneath. By this means the upper portion is fitted over the bottom, and the flies go down from the top, but are prevented from actually getting to the meat. At intervals the top is taken off and dipped into boiling water and the flies are destroyed, the bait remaining untouched and undamaged.

I am republishing two clippings describing the methods of poisoning blowflies, and where rabbits can be easily obtained, carcasses of these could be cut open and poisoned and put under boxes covered with wire netting to protect them from fowls, children, etc., and the flies would go into the baits and there be poisoned.

The Adelaide "Chronicle" states that Messrs. E. A. and A. F. Thomas, pastoralists, of the Gawler district, is an endeavour to find an efficacious means of dealing with the blowfly pest tried an arsenic solution, the formula used being 1lb. arsenic, 2lb. washing soda, and two gallons of water, boiling the whole until the arsenic was thoroughly dissolved. To this was added another four gallons of water, making six gallons in all, which was sufficient for all general purposes. Old ewes which had outworn their usefulness were killed and the carcasses opened in such a way that the backbone was left intact, forming a basin into which the poisonous fluid was poured. The poison soon penetrated to every part of the carcass. This bait proved admirable. The flies were drawn from all directions in thousands, and were soon killed. The poison also acted as a preservative of the flesh, and the carcass thus lasted many weeks without any undue smell being observed. Throughout all the time this method has been in use not one sheep has been blown. The bait was equally serviceable in freeing the dairy, stables, and house of the common blowfly. They selected a fair-sized tin and partly filled it with the fluid, into which a piece of raw meat was placed, and the tin was then hung in a near-by tree. The meat attracted the flies, and within a few days thousands could be swept away from beneath the bait.

According to the "Sydney Morning Herald" the latest experiment in New South Wales in connection with treatment of sheep to gain immunity from attacks by blowflies is that carried out by a chemist with many years' experience of the wool industry. This investigation claims to have discovered a dip which, instead of repelling flies, attacks them with fatal results. The dip is composed of 50 per cent, arsenic, and the same quantity of lanoline and mutton fat, thus making what is claimed to be a perfect emulsion when added to cold water. Lanoline being a wool product immediately mingles naturally with the yolk in the fleece, and carries with it the arsenic and mutton fat, which acts as a decoy for the fly. Every sheep treated thus acts as a walking bait. The heat of the sheep's body keeps the lanoline moist for an indefinite period and the arsenic is being dissolved in the grease all the time. When the fly deposits the maggots they absorb the poison, and never develop beyond the first stage. The fly sucks the arsenic and dies soon afterwards. One pastoralist who used it states that the maggots never developed beyond the "ball" stage.

The dip was used on 30 of his lambs struck by flies. He allowed them to remain in a separate yard for a couple of hours. When he returned to inspect them, every maggot was found to have been killed by the preparation. The inventor declares that the dressing, containing lanoline as it does, rather than injuring the wool, improves it. The paste is dissolved by boiling in a small quantity of water, and is then diluted to the required strength, remaining then as an emulsion. One pound of paste is used to 30 gallons of water. It is claimed that two dippings a year, one immediately off shears, and the other with four months' wool on, will give perfect immunity to the attack of fly. A demonstration was given on Wednesday on the property of Mr. L. F. Thompson, of Coolaroo, 10 miles from Moree. About 1800 ewes and lambs shorn in September were dipped with the new preparation. The Blowfly Commission of Queensland has asked the inventor of the new preparation to meet them early in January for the purpose of demonstrating the use of the dip. This will probably be given at Dalnally station, Roma, where the commission is carrying out various experiments.

ENSILAGE AND RABBITS.

A student at Hawkesbury Agricultural College, New South Wales, writing to his father in Perth, gives an account of a trip made recently by some of the students through the dairying districts of the South Coast, and in his notes on a visit to a certain dairy farm, makes the following interesting remarks, which illustrate the fact, often forgotten, that "circumstances alter cases," and that what is wise policy in one place may be questionable in another. We do not have stone fences in Western Australia, but we do have a period when green succulent fodder is not available. A ration of ensilage is thus of the greatest value. He says:—

"This man put forward a very good argument against the use of silage in his district, and that was, that to produce ensilage cheap, large areas of crop were needed, and the larger the area of crop the greater the chance of the rabbits breeding therein. He, therefore, maintained that to successfully farm and cope with the rabbits, small areas of crop had to be planted and the land well cultivated. The miles and miles of stone fences in this district harbour thousands of rabbits."

WRAGGE AND WEATHER CYCLES.

"W.E.H." Kendemp, writes:—Your interesting article in last "Mail" re Clement Wragge and forecasts, is much to the point. I once heard him lecture, he seemed very eccentric, but there was a strain of common sense running through his lecture, as he continually reminded his hearers that they should conserve water for dry periods, and concluded his address with the words, "Dam! Dam!! Dam!!!"

Some years ago I read an article on weather records for 1,000 years, New South Wales. The writer had analysed the records as far back as they went, and his conclusions were that all years ending in 2 and 8 were more or less dry. My own experience goes back to 1888, and I can corroborate his statement. In '88 I was on the Darling, and we had 1 inch and 4 points of rain for the year; '92 was dry, '98 dry, 1902 dry, 1908 dry; I don't remember about 1912, but 1918 was dry, and 1922 is a disastrous year in parts of New South Wales and Queensland. Can you tell us how Western Australian records compare with those dates? It would be interesting to know.

The above letter is very interesting, and I am pleased to see that "W.E.H." supports me, and emphasises the point I desired to impress upon readers, viz., while it would be very foolish for a farmer to try and farm according to the predictions of Mr. Wragge, all will be acting wisely by attending to his sound advice in regard to the conservation of fodder and moisture. The wise man many, many centuries ago said in effect: "He that observeth the wind shall not sow, and he that regardeth the clouds shall not reap" (Eccles. 11, iv.). He that regardeth Mr. Wragge's prediction will be in a similar position; but he that regardeth his advice to Dam! Dam!! Dam!!! and to conserve fodder will sow and reap consistently year by year, in average years, and will not fear an occasional dry season.

About Cycles.

With regard to the years ending in 2 and 8, I have looked up the records since 1878 for Perth, and for Northampton since 1882. There is nothing in the records to indicate that any such rule as that mentioned by "W.E.H." will hold. The years ending in 2 and 8 do not include any of the bad years. Taking Perth, three of the years are considerably over the average, and six are slightly under, but they are not bad years.

The same general remark holds with regard to Northampton. I may here mention that when I lived in Adelaide, I very frequently met my friend Mr. Griffiths, the State Meteorologist, who was afterwards the Chief of Staff at the Federal Weather Bureau. At one time Mr. Russell, astronomer in charge of the Sydney Observatory, published a paper in which he endeavoured to show that the weather of New South Wales was dominated by a cycle of 1,000 years. Mr. Griffiths occupied his spare time for a considerable period tabulating the rainfall figures for South Australia, which extend over a greater period than any of the other States. He arranged them in every manner he could think of, but no arrangement indicated the existence of a definite cycle. I remember his

saying very distinctly: "The figures given by Mr. Russell seem to be conclusive, but if other sets of stations in New South Wales be taken, different results would be suggested, and it looks very much as though Mr. Russell had followed a common practice of forming a theory and then looking for records which would support it." With regard to South Australia, Mr. Griffiths could obtain no evidence of the existence of a definite cycle, either of 7 years, 13 years, or any other period.

I have on my shelves a book called Egerson's "Weather System of Sun Spot Causality." Mr. Egerson was a member of the staff of the Sydney Observatory, and endeavoured to show how forecasting may be done for periods of a week, for several months, for a few years, and for a series of years in advance, and he speaks of cycles. I will not, however, go further into this matter now than to say that, while looking at the subject from an unbiased point of view, I have come to the conclusion that no one has definitely proved the existence of any definite cycle. At the same time, there may be, and probably is, a general periodicity in regard to the seasons, but the periods are more or less irregular, and our evidence at present does not enable us to go further than to speak in very general terms. We are perfectly safe in concluding that after a series of good years we are sure to get some bad ones, and after the bad years we are sure to get good ones. Thus we come back again to the safe rule for the farmer, that he should carry on his work for average conditions, and then he will get average results. If he conserves water and fodder in the good periods, he will have a reserve for the dry periods, and, like Joseph, he will be able to sell his reserves to his less thrifty neighbours.

Fruit Prices.

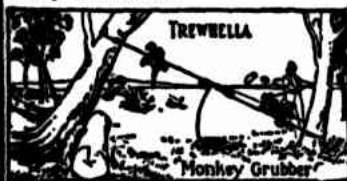
I duly received the clipping about the orange prices. I do not think that you should attach very much importance to the article you sent. As a matter of fact, experience in different markets and different places contradict one another very considerably. It is only a little while ago that I read an article urging that people should grow Valencia, because certain shipments of these had realised higher prices than Navels. Sometimes it is one way and sometimes the other. With regard to the brown heart in the apple, I think the trouble has been due to want of care on the part of the ship engineers, and I am inclined to think that the trouble will be largely overcome next year.

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