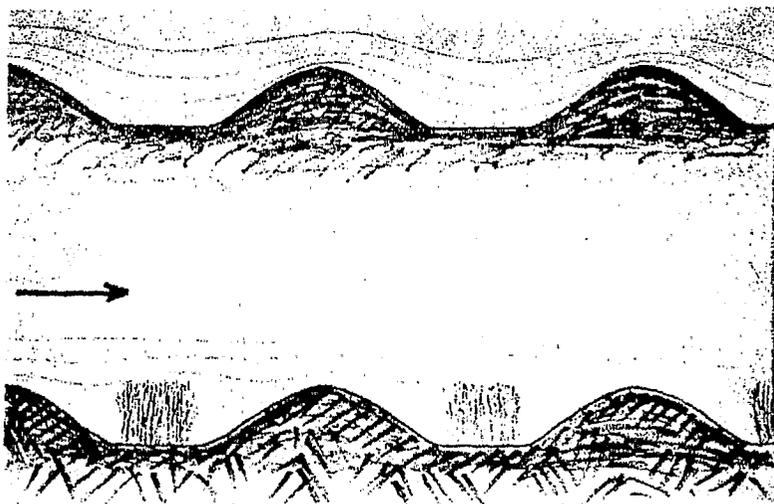


WHY ARE WE TELLING YOU THIS?

It is not the purpose of this pamphlet to sell you on inter-row planting but rather to give you the facts as we know them today. It is also to indicate that we have a lot more to learn (particularly with different soils and management practices) and we need your help. In helping us we believe you will be helping yourself by better farming practices. It pays to save your soil, it pays to prevent blowing down of beds, and it pays to cut down on losses by crooks.



AIR CURRENTS OVER INTERPLANTED AND
NON-INTERPLANTED ASPARAGUS BEDS

JUST WHAT IS THIS INTER-ROW PLANTING?

Inter-row planting is a method of lessening wind erosion in asparagus beds on light soils. Barley or other cereal is grown in narrow strips between asparagus rows. The strips are not usually more than

two feet wide and may be as narrow as a few inches. Planting is done as early as possible (late February, early March) to protect against crooks in market 'gras and at the time of first ridging to protect against wind erosion during the white season. The purpose of this strip of barley or other cereal is not to cover the ground but rather to act as a windbreak which protects the nearby beds. It does its work in two ways. By taking some of the force out of the wind near the ground and by trapping some of the dust caused by tractors and foot traffic before it gets high in the air.

WAS INTER-ROW PLANTING SUCCESSFUL THIS YEAR?

It was highly successful wherever the barley attained a height of 9" or more. However, early in the season on one field it almost completely prevented crooks when the barley was only 4" to 6" high. You will remember last season ('56) that we had a cool wet April which delayed ridging for white and produced a greater than normal weed problem. For this reason, many growers (we had 8 for a total of 1,200 acres inter-planted) were not able to get the cereal strips planted until late in May and they did not get up high enough by the early cut off date of June 15 to do much good. However, most growers who were not able to get their barley up high last year were impressed with its possibilities and all found it possible to work their beds in a normal manner.

WHEN WAS THE BARLEY PLANTED?

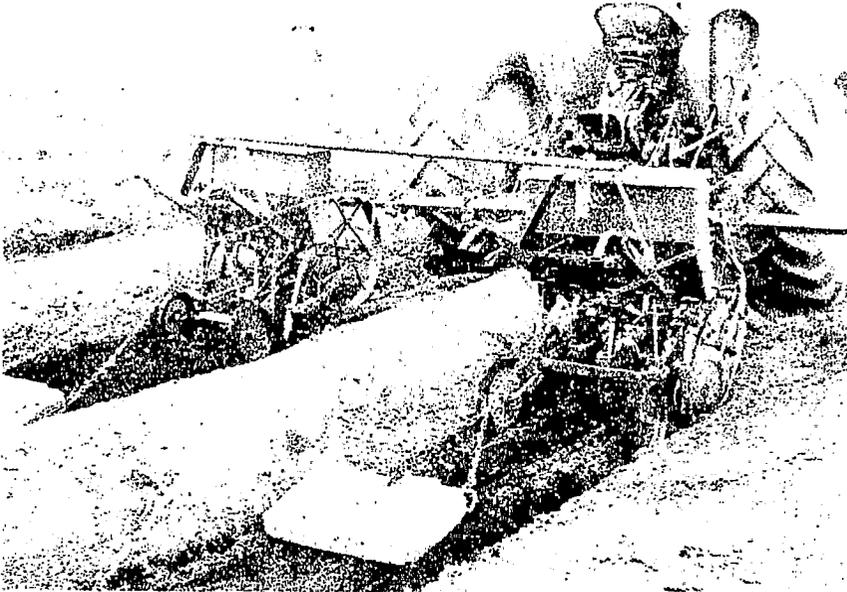
Barley (and in one case, sudangrass) was planted at different times from February 28 to June 5. That planted in February was in a field particularly subject to wind erosion and was put in for the purpose of cutting down on crooks during the market season. Although the rainy April and cool weather this year

and that it has a number of definite advantages for the asparagus grower. What we need to do now is to work out the details so that a greater number of growers can benefit.

We acknowledge with grateful thanks the help and encouragement given by the following cooperators. They all experimented with inter-row planting during the 1956 season and without their help and understanding this pamphlet could not have been compiled.

Louie Dal Porto	- - - - -	Lower Jones Tract
Claire Davis		
(Staten Island Land Co.)	- - -	Staten Island
J. Orlo Hayes	- - - - -	Rindge Tract
Dick March		
(Atkins Kroll Co.)	- - - - -	Terminus
Gay Ribble		
(K. R. Nutting Co.)	- - - - -	Bacon Island
Nat Scatena	- - - - -	Lower Jones Tract
Alfred Zuckerman		
(Zuckerman-Mandeville, Inc.)	-	Mandeville Island
David Zuckerman		
(Zuckerman Farms Co.)	- - - - -	McDonald Island

delayed the time of conversion to white until late April or even early May, we feel that the strips should be planted about mid-April or right after ridging for white. Some growers feel that it may be possible, by throwing up a partial ridge, to plant the barley strips a couple of weeks before conversion to white.



INTER-ROW PLANTING EQUIPMENT

HOW WAS THE BARLEY PLANTED?

Many ways of planting the strips were tried this season and all were more or less successful. Some small fields were planted by hand broadcasting behind a tractor and lightly harrowed in. This was early in the season when there was plenty of moisture. Narrow (3 ft.) grain drills furnished by the University were used on a

number of fields. Tool bar mounted Planet Jr. units were used on one field and a tool bar mounted fertilizer drill was used on three others. A very successful planter used early in young non-ridged 'gras was a 10' grain drill with the center openers removed. A pair of home-made tool bar mounted single wheel grain drills did a very fine job on over 600 acres.

IS THE WIDTH OF STRIPS IMPORTANT?

Last season we had strips all the way from a single drilled row to one 3' wide (broadcast solid). All were effective. Most of the acreage was planted 2' wide by means of five drilled rows spaced at 6". This appears to be wider than necessary (except for early protection of market 'gras) and it is felt that three drilled rows at 6" spacing is probably the best. Seeding rates should be higher than for grain fields in order to give thick stands. Rates of 150 to 200 lbs. per barley acre were used this past season. This amounts to around 25 to 50 lbs. planted per actual asparagus acre.

WHAT ABOUT CULTIVATING?

A frequent question is, "How can I work my beds with the barley in there?" The answer varies with different conditions of bed age, spacing of beds, weediness, and type of cultivating equipment and tractor used. Some growers had to set their disks in a little narrower or adjust them in other ways. One of the growers changed the tread of his tractor to avoid running over the barley. Another (on 8' beds) was able to split his beds completely open for a day or two (to get rid of seed corn maggot) and still leave the barley standing in good condition. The outstanding fact is that every grower who worked his beds was able to do so successfully without destroying the barley.

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IS THERE ENOUGH MOISTURE TO BRING THE BARLEY UP?

Yes. We have had no difficulty the past two years. There is, of course, plenty of moisture when planted early to protect market 'gras. By mid-April or early May the surface soil has begun to dry out. However, ridging removes a couple of inches or more of this dry soil and the drill can easily put the seed into moisture. It is important that the seed get down into the moisture and not just on top of it. On one of the fields this year where the barley was planted just on top of the moisture, the growth was disappointing. Although the barley sprouted and came up in good stand, it was stunted at about 6" because it couldn't put out any secondary roots into the dry soil. (These roots come out above the seed.)



A GOOD EXAMPLE OF BARLEY INTERPLANTED IN ASPARAGUS

HOW CAN THE CUTTERS WORK IN IT?

Actually, little or no trouble has been encountered by the cutters, whether they be Mexican Nationals or Filipinos. This is due in part to the narrowness of the barley strip with space to walk between it and the bed. The ability of barley to stand some amount of trampling also plays its part. The only real difficulty this past season was where the barley was planted early (February) and maintained throughout the season. When the beds were ridged for white, the barley was left on a ridge down the centers and this presented some difficulty for the cutters. On at least one ranch, cutters have praised the inter-row planting because it made walking easier and less dusty.

WHAT PREVENTS BLOWING BEFORE THE BARLEY IS UP?

Records of the past two years indicate that most of the dust occurs after the middle of May. The barley should be up high enough by this time. We have some plans which we would like to try next season which might protect the 'gras both early and late.

CAN THE BARLEY BE HARVESTED?

Ordinarily the barley will not be mature enough by the end of the cutting season. Even when the barley is mature enough it appears that the grain obtained will only just pay for the harvesting. Therefore, it doesn't appear worthwhile, except possibly to lessen the volunteering problem the following winter.

THE VOLUNTEER PROBLEM

Even when the barley is not mature enough to harvest, it may be sufficiently mature to volunteer during the winter season. Although our experience with this problem is limited, it does not appear to be serious.

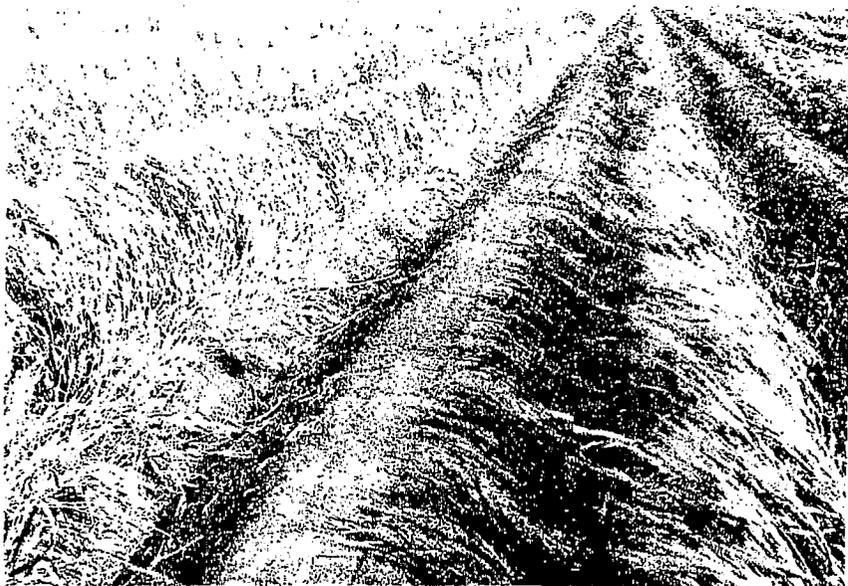
The barley does not grow too much during the winter and is easily killed out during spring disking. We will learn more about this during this winter. One possible solution to the volunteering problem may be the use of sudangrass rather than barley. A field which was interplanted to sudangrass and allowed to mature did not volunteer with the fall and early winter rains. If any sudan had come up it would have been frost killed. Besides, most of the remaining seed will rot in the ground over the winter. We do not yet know if sudangrass will grow fast enough in the early spring to be effective.

WEED CONTROL

Weed control on the beds has been no problem since it has been possible to cultivate them in a normal way. In some of the fields this past year, the density of the barley stand appeared to give good control of the weeds in the strip down the middle. In other fields, the barley was planted late enough so that the weeds which came up in the barley row did not mature before the end of the 'gras season and so produced no weed seed problem. 2,4-D spray by airplane was tried but was not entirely successful. This may have been due to the 2,4-D formulation used. Probably a long boom ground rig with nozzles only over the barley strips would be both more effective and cheaper.

COULD THRIPS BE A PROBLEM?

It doesn't appear to be. Ordinarily, inter-row planting would be used with white 'gras and no damage would occur even if there were thrips present. Thrips could conceivably be a problem where barley is used to protect green 'gras all season and the barley dried up before the end of cutting. However, late planted inter-row barley in green 'gras might actually act as a trap crop helping to keep down thrips damage due to migration from nearby drying grain fields.



INTERPLANTED FIELD DURING SEVERE WINDSTORM

DOES IT REALLY CUT DOWN ON WIND EROSION?

Yes. It has cut down on both wind erosion and dust. We have considerable evidence to support this idea. Last year during one dust storm, we collected 5 times as much dust coming off an unprotected asparagus field than we did from the field next to it which had been interplanted with barley. In another case, a field of very light peat whose beds were usually blown flat on windy days was not damaged in high winds with very little dust and no flattening or disturbance of the ridges. It was interplanted to barley. Fields all around it were blowing heavily and creating much dust. Fields that were interplanted to barley were seen to create far less dust by cutters and jitney tractors than non-interplanted fields. It appears certain that the ridges in some of the interplanted fields this year

would have been blown down. These fields would have needed re-ridging if it hadn't been for the barley. In the 1955 season, interplanted asparagus required only half as much re-ridging as asparagus without the barley.

HOW MUCH DOES IT COST?

Costs will vary depending upon equipment available and weediness of fields. Seed will run from \$.75 to \$1.50, planting about \$.50. If weed control in barley rows is required, sprays will cost around \$2.00 if put on by air, somewhat less (perhaps only \$1.00) if applied by ground rigs. Extra cultivation is sometimes needed to control volunteer barley in the winter months. In all, the cash outlay will probably run around \$2.00 to \$4.00 per acre. But this is not the full story. The government will pay \$2.00 per acre through the Agricultural Stabilization and Conservation program as an approved conservation practice. In addition, the money saved by reducing the numbers of crooks during the green season can be considerable. Also a saving can be had in cultivation costs and crop loss when inter-row planting protects white 'gras ridges from being blown down or sideways off the 'gras rows.

HOW CAN INTERPLANTING STOP DUST EVEN THOUGH DUST COMES OUT OF FIELDS WHEN THEY ARE IN FERN?

The conditions that exist when a field is in fern are far different from those of an interplanted field during the harvest season. The field in fern has been cultivated frequently for weed control. The soil is, therefore, much drier and looser than during the Spring. In addition, even in a good stand asparagus fern does not provide as solid a windbreak as barley; in poor stands, fern provides little protection.

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WHAT ABOUT WIND BLOWING DOWN THE ROWS?

We had three fields this past year which had only a single drilled row of barley down the centers. The rows ran due east and west. These were observed during a dust storm when the wind was due west. Only 1/5 as much dust was coming off the inter-row planted fields as from the unprotected fields alongside. There was so much dust from the regular field that one could hardly see across the check and yet you could easily see the whole length of the interplanted field. How can this be so? Most dust storms are caused by winds that are only a few (in many cases only 1 or 2) miles per hour faster than required to cause blowing. The barley down the rows, by weaving back and forth, appears to take enough "sting" out of the wind to reduce it down to where it can't do much damage.

WILL IT HURT ASPARAGUS PRODUCTION?

Although this is a hard thing to prove one way or another, growers' records this year do not indicate that asparagus production was hurt. The asparagus authority for the University of California in Davis has said that he sees no reason to believe that the barley would affect the asparagus in any way. The barley is shallow rooted and should not seriously compete for moisture with the asparagus plant which can draw from the water table. At the end of the season, the barley and all its nutrients and organic matter are turned back to the soil.



INTER-ROW PLANTING COULD HAVE
PREVENTED THIS

QUALITY OF GREEN GRASS WAS IMPROVED

On 80 acres that were interplanted to barley early in the season (February 27) a decided decrease in culls due to crooks resulted. These two fields are highly subject to wind erosion. In the past during the market season they produced more culls due to crooks than any other field on the ranch. This year, with interplanting, they produced fewer culls due to crooks than the other fields. In fact they produced almost no crooks.

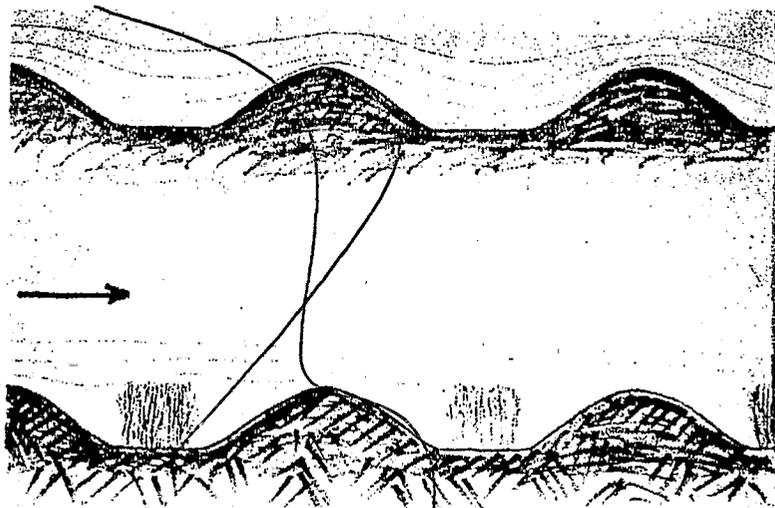
WHERE DO WE GO FROM HERE?

As you can see from this booklet there are still many unanswered questions. What we need is greater experience with more acreage. We need your help. We feel that beyond a doubt inter-row planting can work

- 11 -

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