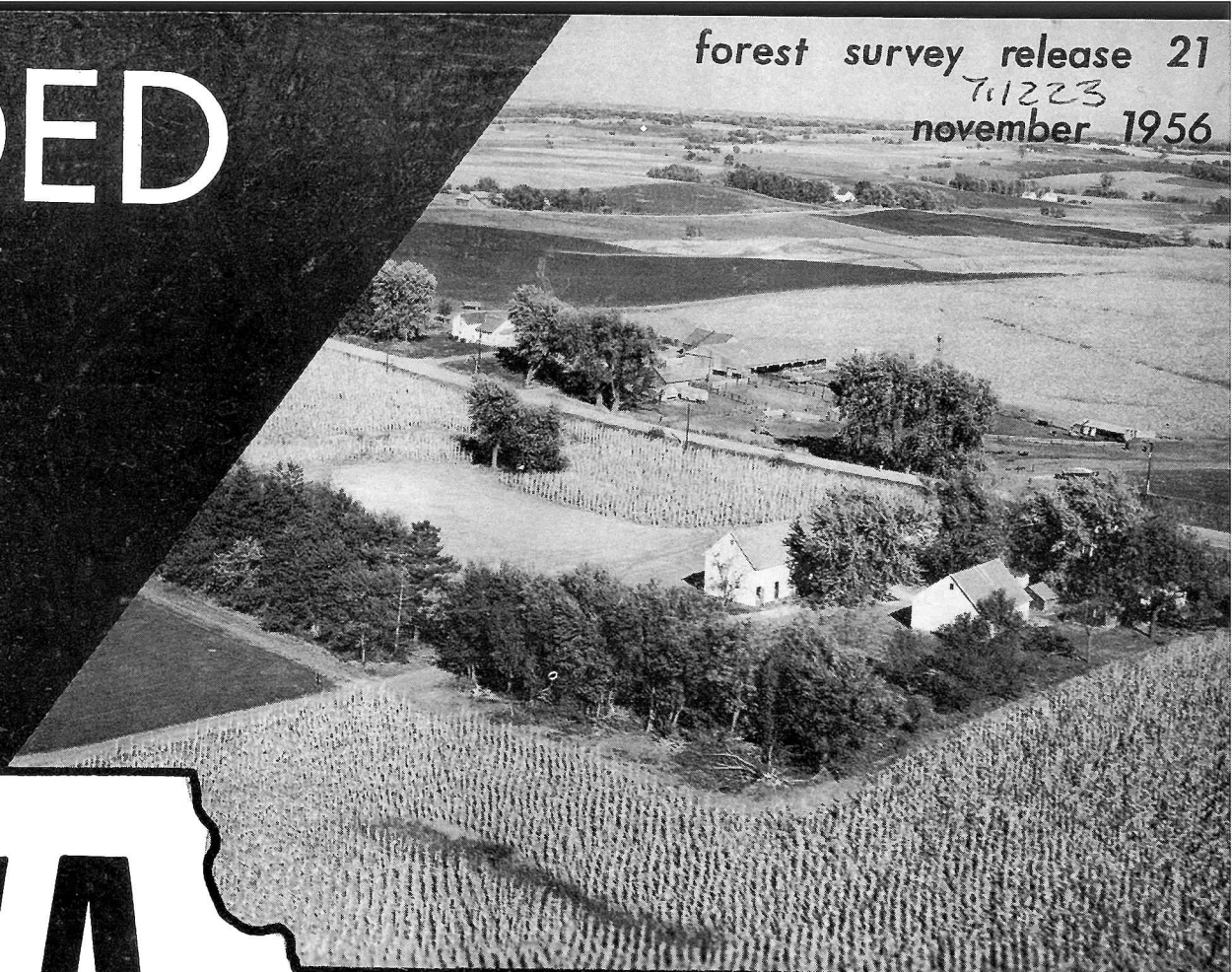


# WOODED STRIPS IN

# IOWA

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U. S. DEPARTMENT OF AGRICULTURE

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FOREST SERVICE

Central States Forest Experiment Station



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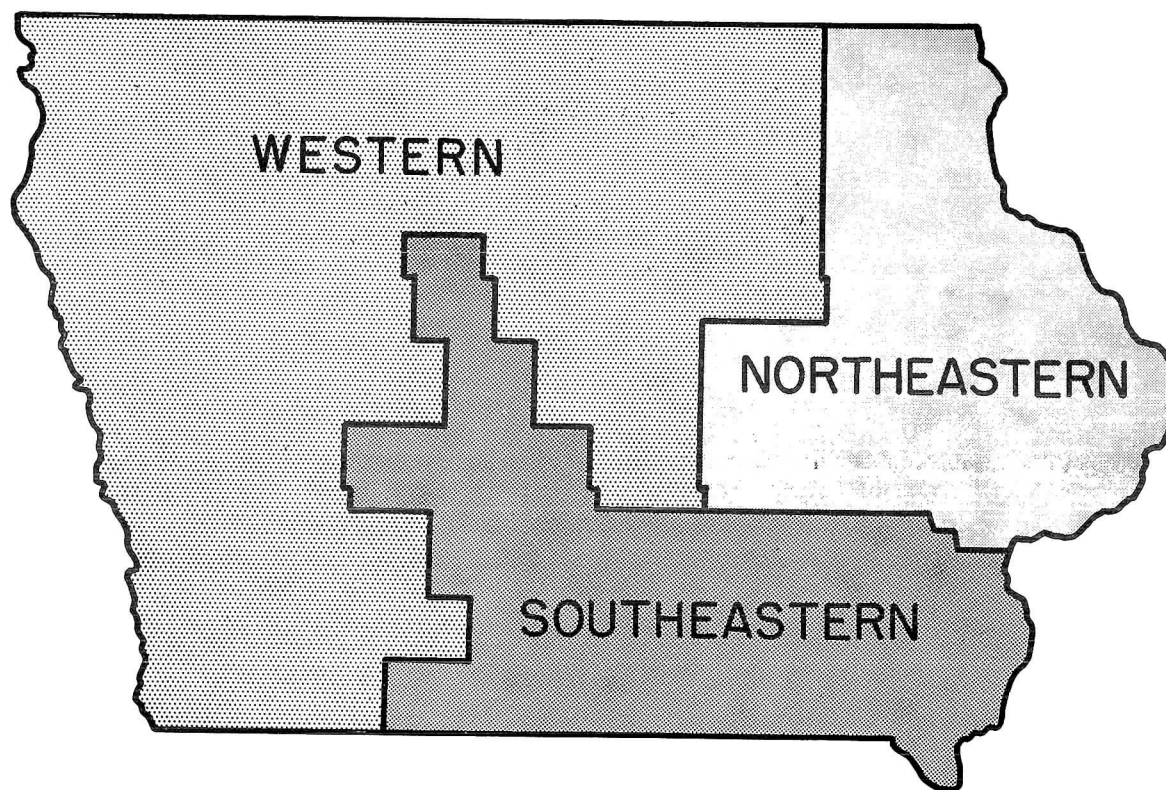
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# **WOODED STRIPS IN IOWA**

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Frontispiece.--Forest Survey regions in Iowa.



The recent Forest Survey of Iowa reported as forest land only those areas larger than 1 acre in size and more than 120 feet wide.<sup>1/</sup> In farming states like Iowa, however, such small patches and narrow strips of wooded land take on greater significance than in more heavily forested states. Reasons for this are that small woodlands, especially in the form of narrow strips, affect the use of adjacent land by providing game cover and protection from wind as well as forest products for local use.

Had roadside and streamside strips and shelterbelt plantings on small areas been included in the Forest Survey, Iowa's recorded forest area would have been increased by 25 percent. So, in order to get a better idea how much timber is contained in these narrow strips, a special study was made of them. By using aerial photographs much information was obtained at very little additional cost to the Forest Survey. The results of this study are reported here in terms of the three major forest regions of the State (frontispiece).

Photo estimates alone of course cannot provide firm estimates of timber volume or timber cut on small strips. So when resurveys are begun, it may be advisable to include ground measurements on narrow strips in Iowa in order to get a more complete picture of the timber situation.

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<sup>1/</sup> Central States Forest Experiment Station. Iowa Forest Statistics. Forest Survey Release 20, 58 pp., illus. 1956.

## AREA IN NARROW STRIPS

There are 664,000 acres of "forest" in narrow natural or planted strips in Iowa (table 1). This area is in addition to the 2,620,000 acres of commercial forest land as defined by the Forest Survey<sup>2/</sup>.

The lowest percentage of land in strips is in the western region, and the highest percentage is in the southeast. The western region, however, leads in total acreage in strips, whereas the northeastern area is a poor third.

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<sup>2/</sup> Ibid., page 53.

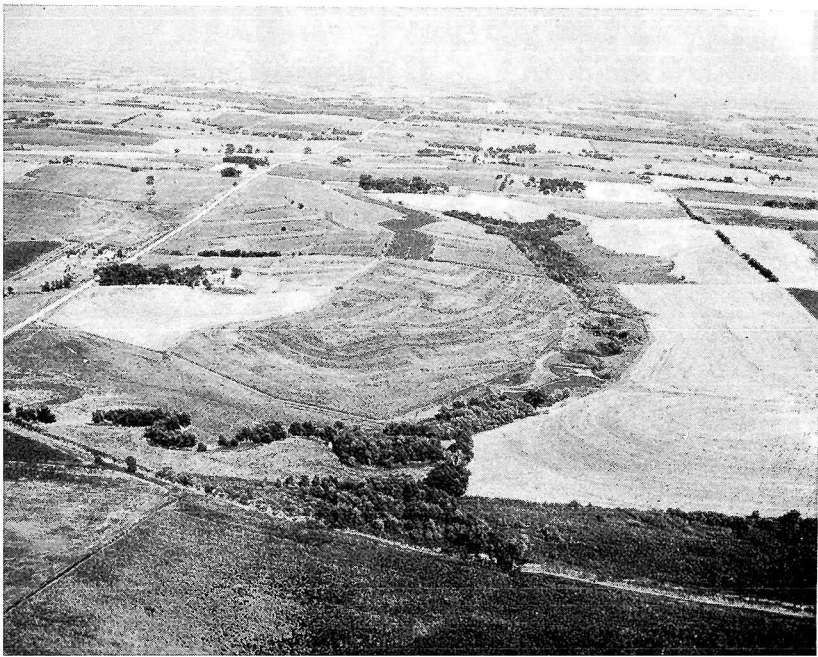


Figure 1.--A natural forest strip bordering a stream.

For the State as a whole, nearly two-thirds of the area in strips is natural forest; a little over one-third has been planted. However, 52 percent of the strips in the western region are planted, whereas planted strips in the other two regions average only 23 percent of the total strip area. This should be expected because the western region is primarily prairie.

The natural strips are stringers along stream and drainage courses--remains of larger forest areas and small, natural farm woodlots or isolated clumps of forest growth (fig. 1). Planted strips are narrow (less than 120 feet wide) shelterbelts, fence rows, or windbreaks, or are planted farm woodlots less than 1 acre in size. Orchards and ornamental or shade trees on a farmstead are not considered as either forest land or narrow strips.

Table 1.--Area in narrow strips

| Region       | : All strips |             | : Natural strips |             | : Planted strips |             |
|--------------|--------------|-------------|------------------|-------------|------------------|-------------|
|              | :Thousand:   | Percent of  | :Thousand:       | Percent of  | :Thousand:       | Percent of  |
|              | : acres      | : land area | : acres          | : land area | : acres          | : land area |
| Northeastern | 156          | 2.0         | 118              | 1.5         | 38               | 0.5         |
| Southeastern | 244          | 2.8         | 190              | 2.2         | 54               | .6          |
| Western      | 264          | 1.3         | 126              | .6          | 138              | .7          |
| State        | 664          | 1.9         | 434              | 1.2         | 230              | 0.7         |



## STAND-SIZE CLASS

About 40 percent of the acreage in strips is in sawtimber stands with a minimum net volume per acre of 1,500 board-feet (International 1/4-inch rule) in sawtimber trees (fig. 2). More than half is in pole-timber stands (table 2). These are stands which do not qualify as sawtimber but are at least 10 percent stocked with trees 5 inches d.b.h. and larger. The remaining 6 percent of the acreage is in seedling and sapling stands (predominantly trees less than 5 inches d.b.h.).



Figure 2.--A forested strip containing sawtimber.

The foregoing percentages are about the same for both natural and planted strips, but there is some variation by region. In the northeastern region slightly more of the natural-strip acreage is in sawtimber, and in the southeast two-thirds of the planted-strip acreage is in poletimber.

The relatively high occurrence of sawtimber stands in natural strips in the northeast is probably because part of the original forest cover has been retained on areas obviously unsuited for farming. On the other hand, the much higher percentage of poletimber stands in the southeastern plantations indicates either a later planting program or a faster rate of sawtimber cut.

Table 2.--Stand-size class of narrow strips  
(In percent)

| Region       | Total  |        |            | Natural |        |            | Planted |        |            |
|--------------|--------|--------|------------|---------|--------|------------|---------|--------|------------|
|              | Saw-   | Pole-  | Seedlings  | Saw-    | Pole-  | Seedlings  | Saw-    | Pole-  | Seedlings  |
|              | timber | timber | & saplings | timber  | timber | & saplings | timber  | timber | & saplings |
| Northeastern | 46     | 46     | 8          | 47      | 43     | 10         | 45      | 55     | 0          |
| Southeastern | 37     | 56     | 7          | 38      | 53     | 9          | 29      | 67     | 4          |
| Western      | 39     | 57     | 4          | 35      | 57     | 8          | 42      | 57     | 1          |
| State        | 40     | 54     | 6          | 40      | 51     | 9          | 40      | 59     | 1          |

# STOCKING

A little more than one-fifth of all the area in strips has good stocking, that is at least 70 percent of the area of each stand is covered by the crowns of trees belonging to the assigned stand-size class and all larger stand-size classes. The remaining four-fifths is almost equally divided between fair (40 to 70 percent crown coverage) and poor (less than 40 percent coverage) stocking (fig. 3 and table 3).

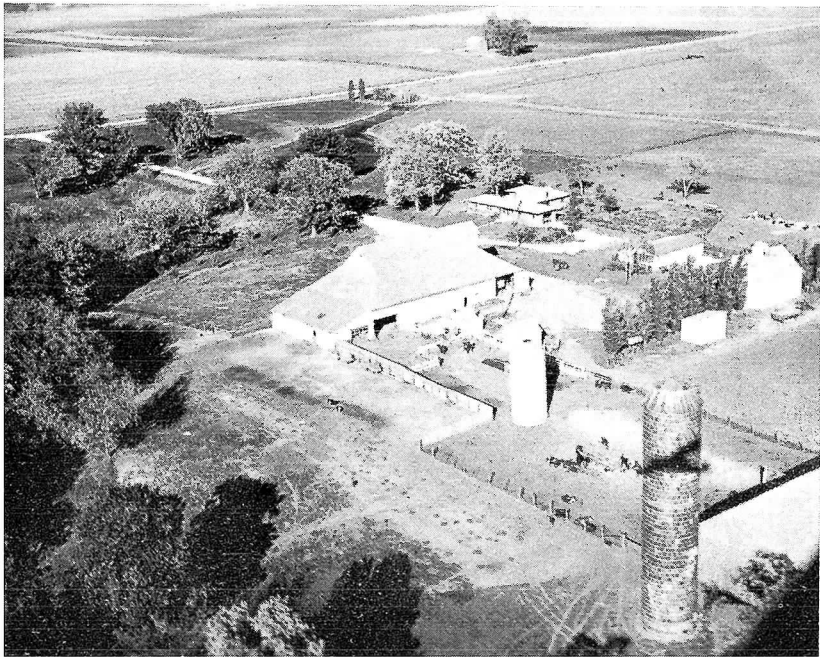


Figure 3.--Much of the area in strips is too poorly stocked to produce good timber.

The same general distribution holds for both natural and planted strips except that good stocking is found on 18 percent of the natural

strips and 29 percent of the planted strips. Although there are some regional variations, there is more poorly stocked area than either fair or good.

Table 3.--Stocking of narrow strips  
(In percent)

| Region       | Total |      |      | Natural |      |      | Planted |      |      |
|--------------|-------|------|------|---------|------|------|---------|------|------|
|              | Good  | Fair | Poor | Good    | Fair | Poor | Good    | Fair | Poor |
| Northeastern | 23    | 40   | 37   | 20      | 43   | 37   | 32      | 32   | 36   |
| Southeastern | 18    | 37   | 45   | 17      | 40   | 43   | 20      | 28   | 52   |
| Western      | 24    | 37   | 39   | 17      | 35   | 48   | 31      | 38   | 31   |
| State        | 21    | 38   | 41   | 18      | 39   | 43   | 29      | 35   | 36   |



## TOPOGRAPHIC SITE

About one-fourth of Iowa's strip-forest area is located on bottomland, including stream borders, low benches and coves, and old riverbeds (fig. 4 and table 4). The remainder is divided equally between the level upland and rough upland sites. Level upland is level or gently rolling topography without prominent drainage patterns, and is land likely to remain as pasture or cropland if cleared. Rough upland is rugged topography with sharp drainage patterns, and will probably revert to forest or wasteland if cleared.

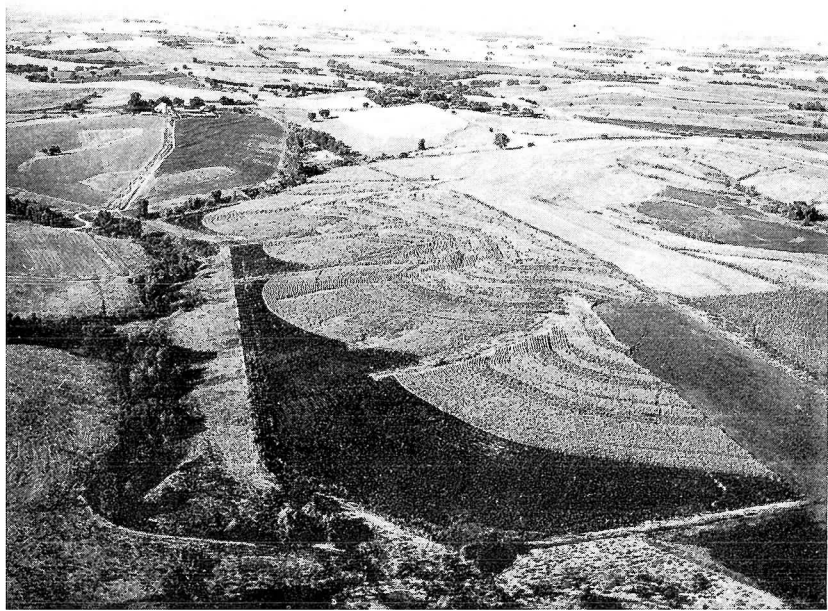


Figure 4.--Forested strips along drainages and on level upland (background).

More than half the area in natural strips is on rough upland sites. On the other hand, 85 percent of the strip or windbreak planting is confined to level uplands. Such land is generally more valuable for agriculture

and more subject to wind damage, and hence more in need of protection. The only marked regional difference is in the western region where nearly half of the natural-strip acreage is found on bottomland sites.

Table 4.--Topographic site of narrow strips  
(In percent)

| Region       | Total              |                    |                   | Natural            |                    |                   | Planted            |                    |                   |
|--------------|--------------------|--------------------|-------------------|--------------------|--------------------|-------------------|--------------------|--------------------|-------------------|
|              | :Level<br>:upland: | :Rough<br>:upland: | :Bottom-<br>:land | :Level<br>:upland: | :Rough<br>:upland: | :Bottom-<br>:land | :Level<br>:upland: | :Rough<br>:upland: | :Bottom-<br>:land |
| Northeastern | 32                 | 41                 | 27                | 13                 | 52                 | 35                | 89                 | 8                  | 3                 |
| Southeastern | 26                 | 50                 | 24                | 12                 | 59                 | 29                | 76                 | 20                 | 4                 |
| Western      | 49                 | 24                 | 27                | 6                  | 45                 | 49                | 89                 | 4                  | 7                 |
| State        | 37                 | 37                 | 26                | 10                 | 53                 | 37                | 85                 | 9                  | 6                 |

## SPECIAL USE

A narrow strip may serve as a windbreak or a combination shelterbelt and fence row, or it may be merely part of a natural forest. A windbreak is planted for the protection of farmsteads and farm buildings (fig. 5), but a shelterbelt or fence row is generally used for the protection of fields and roads. Natural strips may or may not serve a purpose other than producing timber.

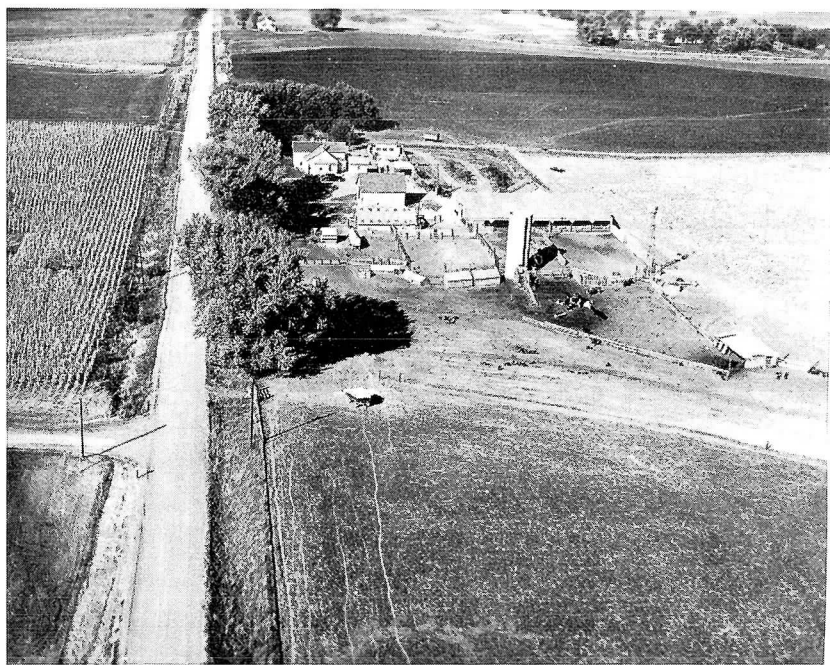


Figure 5.--A strip of trees serving as a farm windbreak.

In Iowa about half of all the area in strips is contiguous with larger forest areas; one-quarter is in windbreaks and one-quarter is in shelterbelts or fence rows (table 5). More than 70 percent of the natural-strip area is part of larger forests.

Two-thirds of all the planted-strip area is in windbreaks. In the southeastern region, more than 70 percent is in shelterbelts or fence rows but in the western region more than 80 percent is in windbreaks.

Since the southeastern region has the greatest area of easily erodable soil, it would seem that shelterbelts would be more common there so that fields and roads might be protected. Actually, however, the plantings in the southeast are largely fence rows. This is also true in the southern half of the State where Osage-orange was planted for fencing purposes. The earlier settlers were primarily interested in fences and only slightly interested in shelterbelts. But in the western prairie area, farmsteads require greater protection from wind and hence more windbreaks are used.

Table 5.--Special use of narrow strips  
(In percent)

| Region       | Total       |             |        | Natural     |             |        | Planted     |             |        |
|--------------|-------------|-------------|--------|-------------|-------------|--------|-------------|-------------|--------|
|              | : Shelter-: |             |        | : Shelter-: |             |        | : Shelter-: |             |        |
|              | : Wind-     | : belt or   | : Rem- | : Wind-     | : belt or   | : Rem- | : Wind-     | : belt or   | : Rem- |
|              | : break     | : fence row | : nant | : break     | : fence row | : nant | : break     | : fence row | : nant |
| Northeastern | 17          | 27          | 56     | 3           | 23          | 74     | 61          | 39          | 0      |
| Southeastern | 9           | 41          | 50     | 4           | 31          | 65     | 26          | 74          | 0      |
| Western      | 48          | 11          | 41     | 10          | 5           | 85     | 83          | 17          | 0      |
| State        | 26          | 26          | 48     | 6           | 21          | 73     | 66          | 34          | 0      |

## SIZE OF STRIPS

Three-fifths of the area in natural strips is contained in units less than 1 acre in size and 97 percent in units smaller than 15 acres (table 6). In the planted strips, four-fifths of the windbreak area and three-fourths of the shelterbelt area occur in units smaller than 1 acre, and, nearly all of the area in both types of planting is in units less than 5 acres in size. There is little regional variation in the average size of strips.

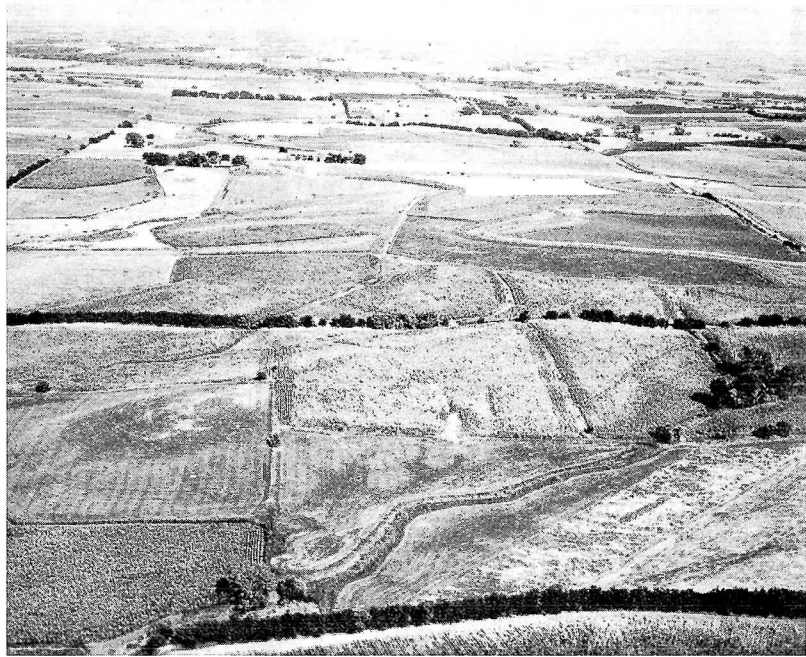


Figure 6.--Many of the forested strips are long, narrow stringers.



Inasmuch as a narrow strip by definition is less than 120 feet wide or smaller than 1 acre, a natural strip larger than an acre would be a long, narrow stringer. So it is not unreasonable that as much as 40 percent of the natural strips are larger

than 1 acre, because the stringer shape is characteristic of many such strips (fig. 6). Plantations for farmstead and field protection are usually much smaller in area since the plantings are restricted to windbreaks and shelterbelts which will result in direct benefits.

Table 6.--Average size of narrow strips  
(Percent in range of acres)

| Region       | Size of natural strips (acres) |    |    |     |     |      | Size of planted strips (acres) |    |    |     |             |    |     |  |
|--------------|--------------------------------|----|----|-----|-----|------|--------------------------------|----|----|-----|-------------|----|-----|--|
|              |                                |    |    |     |     |      | Windbreak                      |    |    |     | Shelterbelt |    |     |  |
|              | 0-                             | 1- | 5- | 15- | 40- |      | 0-                             | 1- | 5- | 0-  | 1-          | 5- | 15- |  |
|              | 0.9                            | 4  | 14 | 39  | 119 | 120+ | 0.9                            | 4  | 14 | 0.9 | 4           | 14 | 39  |  |
| Northeastern | 53                             | 34 | 11 | 1   | 0   | 1    | 82                             | 11 | 7  | 82  | 12          | 6  | 0   |  |
| Southeastern | 60                             | 35 | 3  | 2   | 0   | 0    | 82                             | 18 | 0  | 76  | 20          | 4  | 0   |  |
| Western      | 67                             | 25 | 3  | 4   | 0   | 1    | 80                             | 19 | 1  | 73  | 24          | 0  | 3   |  |
| State        | 60                             | 31 | 6  | 2   | 0   | 1    | 81                             | 17 | 2  | 76  | 20          | 3  | 1   |  |

## FARM WINDBREAKS

More than 4 out of every 5 Iowa farms have either planted or natural windbreaks (fig. 7). This is especially surprising when it is considered that windbreaks comprise only half of 1 percent of the State's total land area.

As might be expected, the western region has the highest percentage (92) of farms with windbreaks while the southeast has the lowest. This distribution among the various regions is similar to that shown in table 6.



Figure 7.--A farm home well protected by trees.

## CONCLUSIONS

Farmers do obtain some wood products, such as fence posts, fuelwood, and occasional sawlogs and veneer bolts, from strips of timber that have been left or planted. But these are primarily salvage products obtained by removing dead or damaged trees, especially from planted strips that were established for protection of buildings, livestock, roads, and fields. In addition to the protection provided, the trees make the farm home and surroundings more attractive and livable. They also provide shelter for birds and wildlife which bring enjoyment to

local residents in many ways.

Normally "forest" trees are evaluated in terms of wood products; these intangible values have seldom been estimated. There is no doubt, however, that the farmer values his strips of timber greatly when he allows them to occupy highly productive cropland. It appears that trees are especially valued where natural stands are sparse, as evidenced by the greater area of strip plantations in western Iowa than in the remainder of the State.