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Utilization of Indian tribal resources in the production and marketing of Christmas trees

William George Harris
*The University of Montana*

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THE UTILIZATION OF INDIAN TRIBAL RESOURCES
IN THE PRODUCTION AND MARKETING
 OF CHRISTMAS TREES

By
William George Harris
B.S., University of Wyoming, 1964

Presented in partial fulfillment of the requirements
for the degree of
Masters in Business Administration

UNIVERSITY OF MONTANA
1972
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Chapter 1

INTRODUCTION

Cultured Christmas trees are big business! The development of the cultured Christmas tree industry, as such, had its beginning in the early forties. Prior to that time, very few trees were planted specifically for use as Christmas trees and whatever cultured tree industry that did exist, existed in localized areas. The backbone of the Christmas tree industry therefore was the wild tree, cut from its natural environment as a resource available to a supplier to meet his demand. This type of tree was generally of poor form and quality, leaving to one's imagination a guess as to the number of trees needlessly harvested and eventually wasted each year. Hence, the market was open to the introduction of cultured Christmas trees; cultured trees that were carefully pruned, shaped and cared for to produce desired form and quality.

Since the initial start of Christmas tree plantations (or tree farms as they are commonly called), this type of cultured tree has enjoyed a ready market; while, at the same time, the demand for the wild tree has fallen steadily behind. By 1964, 14,520,000 cultured trees were marketed from Christmas tree plantations, representing approximately 44 percent of the total number of trees produced and sold in the United States.

The Christmas tree industry of today differs radically from the industry of the 1940's. Plantation grown tree sales continue to capture more of the original market; wild tree sales continue to decline; and a new competitor, the artifical tree, has imparted on the market. Many growers
feared that the artificial tree would eliminate the natural tree market; however, this fear has not been justified as demand for more and better natural trees continues. The artificial tree has maintained a slowly increasing share of the market and, consociated with the demand for quality trees, combined forces have caused a decreasing market for the wild tree. Continued demand for plantation grown trees is reliant on two basic factors: (1) superior quality of plantation trees over wild trees, and (2) organized marketing operations of Christmas tree growers' associations and their members. Because of these two factors, two additional things have happened: first, the wild tree producers are being pushed to develop new uses and techniques for their wood lots and their poorly formed trees, and second, the artificial tree producer has had a difficult time changing tradition, thereby limiting his capturing a substantial share of the market.

It is at this juncture that the thesis of the paper must be considered. To set the tone, one must pose this question—"Since sales of plantation grown trees hold a growing percentage of the Christmas tree market there must be good returns in the business; how then can the Confederated Salish and Kootenai Tribes of Montana, as owners of Christmas tree plantations, through the utilization of their available resources gain a profitable share?"

To attempt an answer, one must review the past history of the Christmas tree business efforts of the Confederated Salish and Kootenai Tribes (hereinafter referred to as the Flathead Tribe or Reservation).

The Christmas tree cutting business has been prominent on the Flathead Reservation since before the 1940's. The earliest available records indicated that, in 1936, the combined harvest of Christmas trees totaled 102,840 bales and that a gross income to the tribe and tribal members of
$41,136 was earned. The tree that was cut was harvested in its natural environment—a wild tree. Since the initial start of the harvesting program, the wild tree has been the basic fiber of the Flathead Christmas Tree Program. The demand for the wild tree has declined steadily over the past thirty years. Table 1 gives a breakdown, on a five year incremental basis, of the decline as it affects both tribal production and revenue. Coupled with this decreasing demand is the fact that the wild tree reforestation program has not kept pace with the cutting process, thereby creating a situation wherein the supply of harvestable trees has also decreased.

There exists yet another side of the picture of the declining supply. As one would assume, Christmas tree harvesting on the reservation must be done in compliance with tribal regulations established for each specific year (see Appendix 1—Christmas Tree Regulations, 19__). Since the beginning of the program, all cutting has been done under tribal permit (see Appendix 2—Timber Cutting Permit). In the past, an excess of 250 permits have been issued in any one year (see Table 2). Because of the number of cutters in the forest and the large area involved, supervision over and enforcement of the cutting regulations are extremely difficult. Responsibility for supervision and enforcement of these tribal regulations rests with the Bureau of Indian Affairs, Department of the Interior. As such, the B.I.A. is accountable under the trust obligation between the United States Government and the Flathead Tribe, for the proper utilization and preservation of the natural resources (including the forests) of the tribe. Therefore, an area of involvement undertaken by the B.I.A. was a quantification of the potential loss to the Flathead Tribe because of the oftentimes indiscriminate harvesting of the many trees by the cutters. This cutting, in
essence, was a future loss of income to the Flathead Tribe via a deprivation of potential logs utilized as merchantable timber. Table 2 sets forth a recent survey (1960-1969) of both (constructive as opposed to detrimental) phases of the Flathead Christmas Tree Program as defined above.

The issue then narrows down to the following topic; in essence, the thesis of the paper:

As a marketable product, can Christmas trees, grown on an Indian reservation and owned by an Indian or an Indian tribe, produce substantial returns; realizing, however, that proper utilization of available resources (land, water, labor and Indian rights) must be effectively and efficiently interwoven to maximize the greatest return?

OBJECTIVES AND PURPOSE

The objectives of this study were:

1. To identify the available resources (land, water, labor, Indian rights, etc.) that will facilitate the establishment of both cultured and natural Christmas tree plantations on the Flathead Indian Reservation under either individual Indian or tribal ownership.

2. To describe the different methods of developing cultured Christmas tree stock, either from planted or wild trees, such that specified quantities of resource may be incorporated into the overall structured program of Christmas tree farming and growth.

3. To analyze the requisite elements of topography, soil or climatic conditions congruent to applicable tree formation--furthermore, an analysis of the growth and rotation cycles is necessary to correlate the developmental cultured methods with the use of available resources.
4. To design an appropriate configuration of integrated objectives (1, 2, 3) above so as to determine an operative and profitable approach to the marketing of Indian trees, based upon marketing potentials under comparative circumstances.

The ultimate design of objective integration (4) defines the purpose. It will determine the cost of operation, the potential revenue, the expected return through systematic crop rotation for maximized tree production. It will further establish the management structure necessary to achieve financial success, because without the constant vigil over the entire program, failure will be guaranteed. Thus, the purpose is to develop an overview of an operative Christmas tree plantation such that the materials developed can be utilized as guidelines to structure such a business, if desired, at a future date on an Indian reservation--The Flathead Reservation.

ASSUMPTIONS

To facilitate preparation of this report, the following assumptions were made:

1. Scotch pine will be used as the species of tree because of its: (1) desired marketability, (2) short rotation period, and (3) adaptability to the local environment.

2. Planting will be done by the hand methods realizing full well that mechanized tree planters are faster and planting is often less costly. The reason--utilization of an available labor force as a concern of tribal welfare and because greater care can be obtained with hand planting resulting in, hopefully, excellent tree growth at a later date.

3. Already established and proven methods of weed control will be considered sufficient to maintain continued control.
4. The program manager will be knowledgeable in forestry practices and will act as supervisor with expertise for developing tree plantations.

5. Only selected land with quality characteristics for established tree growth will be utilized.

6. Continued supervision and enforcement of tribal cutting regulations will be carried out by the Bureau of Indian Affairs, Department of the Interior.

7. Further assumptions will be defined at the time of usage.
Chapter 2

FLATHEAD TRIBAL CHRISTMAS TREE PROGRAM

Beginning in 1940, with the compilation of figures on the Flathead Christmas Tree Program, the output of natural trees into the market has numbered approximately 10 million trees (Table 1). In an article by Robert E. Benson (1967), he determined that 80.5 million trees had been exported from Montana through 1964. The state had, at that time, 1,023,894 acres of tree farms and 62 tree farm units. Furthermore, nearly all of Montana's tree shipments came from a five county area in the western part of the state—Flathead, Lincoln, Missoula, Lake and Sanders Counties.

Flathead and Lincoln Counties have maintained a continuous lead in output throughout the 1936-1960 period, while Missoula, Lake and Sanders Counties combined have increased their share (in a period 1956-1964) to nearly 40 percent of the state's total output.

Based upon the output of trees from the Flathead Reservation (10 million trees), 12 percent of the state's total output has origin on Indian lands. Since 40 percent of this state total now comes from the tri-county area (Missoula, Lake and Sanders) and since Flathead lands (producing approximately 12 percent of total output) comprises the largest single, unified land base in the tri-county region, it has, in essence, the potential of becoming the largest tree farmer there. Therefore, realizing this existing potential will be the substance of the format that follows.
American Indian Winters Doctrine Rights

It is elemental that rights to the use of water are interests in real property. Equally elemental is the principle that rights to the use of water are usufructuary and do not relate to the corpus of the water. In essence, the use of water becomes a most important facet of any proposed tribal project, whether it be industrial, commercial, or agricultural. Here, the approach undertaken is an agricultural one in that, to enhance maximized growth, the tree crops will require additional amounts of water (above the normal rainfall amounts) dependent upon farm locations within the external boundaries of the Flathead Reservation. Implicit therefore in the approach established for growing Christmas trees is the desire of the Flathead Tribe to lay claim (accept police powers over, in essence, declare ownership) to the water. Hence, it becomes necessary to define their potential right to do so.

In 1904, the United States Supreme Court decided U.S. v. Winans. In Winans there were Yakima Indian Nation rights of fishery in the Columbia River which were the subject of attack (rights reserved by the Indians in their Treaty of 1855 with the United States). Applying to that Treaty the basic precepts of the law of real property, the Highest Court stated:

The right to resort to the fishing places in controversy was a part of a larger right possessed by the Indian....the treaty was not a grant of rights to the Indians, but a grant of rights from them--a reservation of those not granted. (Emphasis added.)

In declaring this Treaty immune from control by a license to fish issued by the State of Washington, the Highest Court further stated:

....the (Treaty) right was intended to be continuing against the United States and its grantees as well as against the State (of Washington) and its grantees.
The Supreme Court of the United States, in the Winans Decision, established legal concepts that shortly thereafter in 1908, were enunciated in the Winters v. U.S. decision and laid down the basic rights to water for Indian tribes of this country. Winters was decided respective of the Fort Belknap Indian Rights to the use of water in the Milk River of Montana. There exists striking parallels between Winans and Winters. Both involved Indian tribes in the status of grantor to the grantee United States trustee. Involved further is the immunity of covenants between the Indians and the Nation from the admission of states into the Union, or, in essence, state law. The crux of the Winans and Winters Decisions entailed interpretations of documents pursuant to which the Indians granted away vast areas—retaining, nevertheless, their (immemorial) title to interest in real property, immune from state law, to all that they did not grant.

In Winters there are two salient issues: (1) the meaning of an agreement between the Indians (grantor) and the Federal Government (grantee) as it relates to rights to the use of water; and, (2) the effort of the admission of the State of Montana into the Union upon the agreement as it pertains to those rights. Basically, the emphasis given the facts of Winters is what is important. The Court stated:

The case, ...., turns on the agreement of May, 1888, resulting in the creation of the Fort Belknap Reservation. In the construction of this agreement there are certain elements to be considered that are prominent and significant. The elements that are prominent and significant are:

1. The Agreement of May, 1888, is the Treaty establishing the Fort Belknap Reservation.

2. The agreement reflects the series of cessions of vast areas of land by the Indians, the last being the establishment of the reservation.
3. That in the agreement of land cessions, the Indians retained those rights they did not cede away—one right being the use of water.

Thus, on the impact of these elements, the Court affirmed:

....by the express terms of that Treaty there was reserved to the Indians the waters of Milk River as a part and parcel of the reservation set apart to them. (148 Fed. 684, 686 (C.A. 9, 1906)).

It is of utmost importance that one notes the crucial sentence from the decision: "The government is asserting the rights of the Indians." The Supreme Court presented the second phase of its opinion pertaining to the issue that the admission of Montana into the Union and the laws of that State cast aspersions upon Indian title to the rights thus retained in the following manner--appellants contention was:

....that if it be conceded that there was a reservation of the waters of Milk River by the agreement of 1888, yet the reservation was repealed by the admission of Montana into the Union, Feb. 22, 1889, c. 180, 25 stat. 676, 'upon an equal footing with the original States.'

In rejection of that contention, the Supreme Court attended to the May, 1888 agreement. It pointed out that Winters had to rely upon the same agreement that the Indians did not retain rights to the use of the water in the Milk River to sustain the second contention. Having found that the Indians did so retain such rights, the second contention was erroneous and therefore ineffective in respect to Indian rights.

There exists additional case law upholding American Indian rights to water under the Winters Decision. The law has afforded the Indian a unique position in this respect until most recently. It is at this time that these specific rights are subject to new attacks as set out in the next section.
American Indian Rights now in Jeopardy--Eagle River Adjudication, No. 87, and Water Division No. 5 Adjudication, No. 812

There is before the Supreme Court in the alleged issue, these two cases (Eagle River and Water Division No. 5) questioning whether the rights to the use of water subsequently invested in the Indian tribes will be stripped from them. The action was brought under 43 U.S.C. 666 (Act of July 10, 1952, 66 stat. 560) which allows suits for adjudication of water rights and allowing joinder of the U.S. as defendant. In a nutshell, the substance of the action is this:

Those two adjudications (before the Supreme Court) are on review writs of certiorari to the Supreme Court of Colorado from a decision rendered by that Court. That decision of Colorado's Highest Court held, in effect, that the Congress of the United States by an Act had subjected the rights to the use of water of the United States in the main stream of the Colorado River and the tributaries of that stream, within the State of Colorado, to the jurisdiction of the State Courts of Colorado for adjudication, control and administration. American Indians' rights and interests are inextricably interrelated to the decision of Colorado's Highest Court and to the two adjudications to which the question is directed. Two aspects crucial to the Indian are created by the explicit ruling of Colorado's Supreme Court:

1. Under Colorado laws, Indian rights are within the purview of its statewide statutes and decisions; and,

2. Indian rights are within the nationwide purview of the alleged waiver by Congress of immunity from suit as presented in the Eagle River Adjudication and Water Division No. 5 Adjudication.

Therefore, it is self-evident that the protection of this long fought
over right to the use of water is extremely important to the present and future development of Indian tribes and reservations. As was earlier evidenced in the legal actions initiated for ursurption of these Indian rights, the "taking" actions have been underway for a long period of time and the Indian tribes must be ever watchful in the future against such continued efforts.

There exists now on the Flathead Reservation, a situation wherein just such an inequitable "taking" of water (use) is underway. The Flathead Irrigation Project is operated for the purpose of irrigating farm lands under that system. It is administered by the trustee representative, the Bureau of Indian Affairs, for the specific benefit of serving lands on the Flathead Reservation—the only problem is that approximately 93 percent of the farm lands are controlled by non-Indians. However, it is not the purpose of this paper to dwell upon the existing or future inequities; it is to develop a format whereby the Flathead Tribe can utilize their own resources, including water, to better their own position. In the following section, these rights of the Flathead Tribe are outlined as related to the growing of Christmas trees.

American Indian Rights now Secured to the Confederated Salish and Kootenai (Flathead) Tribes of Montana

Water is an important commodity necessary to the increased growth in trees. As such, the Flathead Tribe must be able to utilize an adequate and available amount of water whenever necessary to propagate the proliferous growth of their trees. Assuming, for the moment, that there exists an inability to utilize the waters flowing to and through the Flathead Irrigation Project, except under heavy financial costs, the Flathead Tribe will
have to look elsewhere for a water supply. This other supply then becomes the basis for their claim under Winters Doctrine Rights for water (use) and they will, therefore, be obtaining this supply external to the boundaries of the Irrigation Project.

Like the Indians of the Fort Belknap Reservation, the Indians of the Flathead Reservation also have a Treaty with the United States—the Treaty between the United States and the Flathead, Kootenai and Upper Pen D'Oreilles Indians, concluded at Hellgate, in the Bitterroot Valley, July 16, 1855; ratified by the Senate, March 8, 1859. Likewise, as in the Agreement of May, 1888, the Flathead Treaty of 1855 ceded away large areas of land, retaining such land that now comprises the present reservation. Consociated with the land is also the attendant rights earlier set out in the discussion of the Winters Decision. In the United States v. V. W. Alexander, et. al., the Court stated:

The waters flowing in the streams on the Flathead Indian Reservation in Montana and their tributaries were reserved.... Indians secured a vested right....

Therefore, the recognition given to the Flathead right in Alexander, coupled with the rights under Winters, would support a contention that the Flathead Tribe could claim (exert police power over) the water—in essence, regulatory powers. Moreover, the Flathead Treaty of 1855 was ratified prior to Montana's acceptance into the Nation and the Supreme Court of the United States, in the Winters Decision, usurped from state law adjudication of Indian rights to water. Regardless of the action resulting in Eagle River or Water District No. 5, wherein the Colorado Court sought not to "determine whether the United States had reserved water rights in connection with lands withdrawn subsequent to August 1, 1876, the date of Colorado's
admission to the Union...." the Flathead Tribe, under treaty right and by their sovereign powers under their Constitution, apparently can so determine to regulate the water.

One must recognize, in reading this paper, that to delve completely into the topic of Indian water rights would be, in itself, a complete dissertation. The intent here is to demonstrate that an Indian tribe does have recognized rights secured to them, that they are faced with "taking" actions continually, and that, possibly, under their sovereign powers, they could usurp controlled appropriations of water rights under the recent precedents established and develop industry to their benefit by utilization of such rights and powers.

Essentially, the tribal right to water is requisite to any development designed to avail upon the physical resources. Without the water, the reservations, in toto, become a useless asset and thereby valueless. As has been the trend throughout the growth of this country, the American Indian rights are "eyed greedily" and the water issue is but one of the many areas under attack today. Therefore, by combining a water right with the development of forestry products—Christmas tree plantations, both cultured and natural—there exists an avenue through which the total resource potential of the reservation is maximized. The following sections will demonstrate the procedures to follow in accomplishing the project and the business methods for retaining these achieved goals.
ECONOMIC POTENTIAL FROM CHRISTMAS TREE PRODUCTION
ON AMERICAN INDIAN RESERVATION LAND

Ownership and Use Status of Land on the Confederated Salish and Kootenai Reservation

The area set aside for the "Exclusive Use and Benefit" as "an Indian reservation" for the Flathead Tribe was as follows:

Commencing at the source of the main branch of the Jocko River; thence along the divide separating the waters flowing into the Bitterroot from those flowing into the Jocko, to a point on Clark's Fork between Camash and Horse Praries; thence northerly to, and along the divide bounding on the west the Flathead River, to a point due west from the point halfway in latitude between the northern and southern extremeties of the Flathead Lake; thence on a due east course to the divide whence the Crow, the Prune, the So-ni-el-em and the Jocko Rivers take their rise, and thence southerly along said divide to the place of beginning.

From this available acreage at the date of ratification of the Treaty (March 8, 1859), the Flathead Reservation has been reduced to 613,116 acres as of June 1, 1971. Reduction of the Indian held acreage has occurred through various means; however, for the remaining land held under Federal-Indian Trust status, the right of "exclusive use and benefit" still attaches. Therefore, the design of this particular approach is within the designate of the Treaty. As such, these non-transferable rights of land use can be developed to accomodate the charge within the Constitution and Bylaws of the Flathead Tribes:

"...., promote our general welfare, conserve and develop our lands and resources, ...."\(^4\)

Availability of land or, at least, a trade-off of land use must be considered by the Tribe in this undertaking. It is not the scope of this paper to offer selected sites; only the general classification of types of soils will be offered as needed criteria of tree growth throughout the
reservation area. Such selection of sites is left to the tribe if they decide to undertake this approach. The following materials, therefore, will outline the requisites of plantation development.

Moving on then, an outline of the different characteristics and classification of soil types is set forth. For comparative purposes, characteristics of and statistics on the Big Fork area will be utilized. This area produces tens of thousands of healthy trees each year and receives approximately 20 inches of rainfall yearly. The three predominant soil types found on the Big Fork Christmas tree farms are "Flathead," "Blanchard," and "Criston." The "Flathead" texture of soil is considered to be the best farmland. It is of interest to note that all three soil types are quite common on the Flathead Reservation; however, in samples taken, a variety of types were present although "Flathead" texture was heavily evidenced. The following characteristics in land-tree growth compatibility are important:

1. Fertile land, flat or gently sloping.
2. Well drained land (some moisture retention).
3. Sandy loam soil--3 to 4 feet in depth.
4. Land free from frost pockets.
5. Land of medium weight composition.
6. Land surface free from stumps and brush.
7. Land receiving approximately 16-20 inches of moisture per year.

Of further interest is the fact that on the reservation, as one proceeds east to west, the per annum moisture decreases approximately one inch per mile.
Preparation, Production and Management of Cultured Christmas Tree Plantations

In order for a plantation to eventually produce an annual income, it must be efficiently managed. It stands to reason that if one neglects to cultivate what he sows, he receives in return the price of his neglect. It has been estimated that without quality tree management, a plantation will yield only 10 percent of its pine and 30 percent of its spruce and fir for sale. Proper cultivation practices will insure one a better yield and, therefore, a greater return. Such practices as those listed below must be established for quality tree production:

1. Begin with an emphasis on quality rather than quantity.
2. Intensive planning of plantation production necessary.
3. Select suitable sites.
4. Establish careful hand planting practices.
5. Plant on herbicide prepared site.
6. Initiate continuous weed, disease and pest control; fertilize as needed.
7. Design proper layout of plantation for fire protection.
8. Continuously evaluate for replacement—weak spots, injured trees, etc.
9. Carry out annual shearing of long terminals, correct crooked trees, remove double leaders, completely eliminate the "dogs."
10. As trees develop, prune to first good whorl to develop a "handle."
11. Develop proper harvesting and handling methods for cut trees.
12. Most importantly, GO FIRST CLASS—when your market is dependent on sales for a single day (or week), second class could wipe you out!
Cultured plantations must be set up in such a way that equal blocks are planted and eventually harvested each year of production. Further development of the plantation will relate to increased block utilization. When the grower determines the acreage to be planted, each acre therein will become a "block" of production. He must follow then an accepted method of managed operation—such a method as defined below.

Upon site selection, the tree grower should summer fallow the ground before the first year. Site preparation, beginning in this manner, is oriented to the end of suppressing weed competition and animal pests (mice, rats, rodents, browsing animals and the like). Herbicidal weed suppression prior to planting is also beneficial for increased tree growth at a later date. In year 1, the following spring, he should cultivate the land, then plant the seedlings on the herbicide prepared site. Careful hand planting is best for future growth regardless of the fact that machine planting is both faster and less costly. An accepted method of planting is to use spacing of 6 feet by 6 feet, fertilizing at the time of planting as an aid in establishment and early growth with an 18 foot road every 18 rows. A twenty-four foot fire break and road around the perimeter of the block is further advisable. Through the utilization of the 6 foot by 6 foot spacing, approximately 1000 trees can be planted per acre. Under successful management, a grower can harvest 80 to 90 percent of the trees planted. It is important to buy seedlings from a proven source, although, as an alternative, using wild stock might be possible (see Bulletin No. 650—University of Vermont, June, 1967). During the fall of the first year, the grower should prepare his site for the year planting.

Beginning in the second year, the grower should evaluate in block I
for tree replacement, clip out the double leaders and consider basal pruning his crop. He should then cultivate block II and plant according to the procedures of year 1. By that same fall, the grower should prepare another site for planting--block III. It should be evident by now, that a cyclic rotation method is being developed, based upon the growth period of the Scotch Pine (average 8 years). To facilitate a clearer understanding of the proposed method, a full rotation cycle will be defined below (years 1 and 2 are set out above but are included here) as a schedule of practices:

Prior to planting (year 1), summer fallow the ground--apply herbicidal weed suppresent--remove waste (stumps, brush, etc.), harrow and roll the site.

Year 1

Spring--cultivate and carefully hand plant on the herbicidal prepared site (block I), using 6'x6' spacing and 18 foot road every 18 rows. Fertilize at time of planting and use Simazine 80W in 2 foot wide bands for further weed control.

Summer--cultivate rows to further control weeds and pests. Begin preparation on site for second year planting.

Year 2

Spring--evaluate block I for tree replacement. Clip out double leaders and consider basal pruning the crop. Grower should cultivate block II, then plant according to the procedures of year 1.

Summer--cultivate as in year 1. Check for insects at time of pruning and fertilize seedlings to aid growth. Begin preparation on site for third year planting.
Year 3

Spring—evaluate blocks I and II for replacement and hand plant tree mortality in block I. Consider additional fertilizing, correct crooked trees and remove the "dogs." Cultivate and plant block III under procedure of year 1. Clip double leaders and basal prune the trees.

Summer—cultivate rows in block II and mow rows in block I. Fertilize as needed and begin preparation on site for fourth year planting.

Year 4

Spring—evaluate for replacement in blocks II and III—hand plant for tree mortality. Cultivate and plant block IV under procedure of year 1; fertilize as needed. Clip double leaders and basal prune trees.

Summer—selectively shear trees (June 1 to August 10) as needed on block I. Cultivate rows in block III and mow rows in blocks I and II. Apply Simazine 4g around tree base (a 2' circle) in block I and make an overall insect check. By now, definitely retreat with herbicide and fertilizer on block I and remove the "dogs." Begin preparation on site of fifth year planting.

Year 5

Spring—evaluate for replacement in blocks III and IV—hand plant for tree mortality. Cultivate and plant block V under procedure of year 1; fertilize as needed. Clip double leaders and basal prune the trees.

Summer—shear trees (June 1 to August 10) in block I; selectively in block II. Fertilize on an every-other-year basis. Cultivate rows in block IV and mow in blocks II and III. Apply Simazine 4g around trees in block II and make insect check. Retreat with herbicide and fertilizer on block II and remove the "dogs." Trim to first good whorl to develop handles. Begin preparation on site for sixth year.
Year 6

Spring—evaluate for replacement in blocks IV and V—hand plant for tree mortality. Cultivate and plant block VI using procedure of year 1; fertilize as needed. Clip double leaders and basal prune the trees.

Summer—shear trees (June 1 to August 10) in blocks I and II; selectively in block III. Apply Simazine 4g around trees in block II and make insect check. Trim to first good whorl to develop handles. Retreat with herbicide and fertilizer on block III and remove the "dogs". Begin preparation on site for seventh year. Cultivate rows in block V and mow in blocks III and IV.

Year 7

Spring—evaluate for replacement in blocks V and VI—hand plant for tree mortality. Cultivate and plant block VII under procedure of year 1; fertilize as needed. Clip double leaders and basal prune the trees.

Summer—shear trees (June 1 to August 10) in blocks I, II and III; selectively in block IV. Cultivate rows in block VI and mow in blocks IV and V. Apply Simazine 4g around trees in block IV and make insect check. Trim to first good whorl to develop handles. Retreat with herbicide and fertilizer on block IV and remove the "dogs". Begin preparation on site for eighth year.

Fall*—determine salable trees in block I. Flag and color the trees, then harvest, bale and ship—November 20 to December 10.

*Trees should be carried to full quality achievement rather than succumbing to the lure of harvesting inferior quality a year or two early.

Year 8

Spring—evaluate for replacement in blocks VI and VII—hand plant for
tree mortality. Cultivate and plant block VIII under procedure of year 1; fertilize as needed. Clip double leaders and basal prune the trees.

Summer—lightly shear excessive growth from trees in block I. Shear trees (June 1 to August 10) in blocks II, III, IV; selectively in block V. Cultivate rows in block VII and mow in blocks V and VI. Apply Simazine 4g around trees in block V and make insect check. Trim to first whorl to develop handle. Retreat with herbicide and fertilizer and remove the "dogs".

Fall—determine, flag and color salable trees in block I as they should be ready for harvest. Determine salable trees in block II. Harvest, bale and ship—November 20 to December 10. There probably will be some underdeveloped trees existing due to replanting during the first two years of operation—the decision to cut or leave them rests with the manager. If cut, clear all remaining trees and let the block lie idle the next year; if left, cut the following year and leave block idle.

One shall note that by this time, a complete growth-to-harvest cycle has occurred. There has been a crop harvested; however, there exists still an amount of tree production remaining, on seven blocks, in different stages of development. To complete a full rotation cycle, an additional seven years of growth is required. By returning to the schedule of practices above and continuing the process out to completion for each of the remaining seven blocks (II to VIII) as was done for block I, a full harvest complement from 8 plantation sites will have been attained. This cyclic procedure requires 15 years and is further outlined in Table 3.

It is evident from Table 3, that for any one segment of time a full growth-to-harvest cycle is underway. Having gained experience from the efforts of the block I cycle, the grower should be able to more efficiently
regulate the quality production of his future crops. There are other benefits derived (to the manager) through the schedule of practices and from Table 3.

By analysis, he can determine that during five years of his plantation cycle, his trees are scheduled for shearing. This means that 5/8 of his total plantation, for 8 continuous years, is scheduled each year to be sheared. Continuing to the future, this means that the remaining trees in his plantation will be sheared each year until the full-rotation cycle (15 years) is complete. He could therefore develop a very carefully pruned, shaped, and cared for tree of desired form and quality. Furthermore, he could appropriately plan his harvesting process in any one year since, at most, only two blocks each year would be cut. Moreover, the schedule of practices and Table 3 allows the manager to pinpoint the desired developmental stage of any block in his plantation and further allows him to plan his rotation in the future.

There are additional operations congruent to eventually marketing quality Christmas trees; however, these operations will be described following the next section--natural Christmas tree plantations.

Preparation, Production and Management of Natural Christmas Tree Plantations

At this point it should be mentioned that, on the Flathead Reservation, there exists many wild stands of trees which, with a little care, could be converted into natural Christmas tree plantations. Here, the emphasis will be centered on cultivating marketable trees through the intermediate steps of production, beginning with growing trees and not planted ones. As was described in the introduction, the market for the "wild" Christmas tree
has declined for various reasons. As was also mentioned, the producer segment of the industry has had either to initiate quality improvement programs to enhance the salability of their trees or convert to other land uses. Thus, this section is an effort to aid the Flathead Tribe in improving techniques to enhance the marketability of their wild Christmas tree.

The basic tree of the Tribal Christmas Tree Program is the Douglas-fir. It alone has supplied a large percentage of the total output of the reservation (see Table 2). However, this output has steadily declined and the production of quality trees is in jeopardy. Spruce budworm population build-up along with other disease and insect infestation has and continues to defoliate extensive areas of Douglas-fir, including areas on the reservation. Extensive control measures are being developed to combat this plight (not described herein), however, it still remains a concern to Christmas tree growers.

Moving on to the topic at hand, the substance of a most recent publication by Wyman C. Schmidt (Research Paper INT-84, 1970) will be utilized to develop a service plan for improving the techniques of wild Christmas tree growth on the reservation. In his paper, "Christmas Tree Culture in Natural Stands of Douglas Fir in Montana," Schmidt evaluates the results of a 10 year study of three commonly used Christmas tree culture methods—stump culture, basal pruning and thicket thinning. Study plots providing a cross section of stand and site conditions were located near Eureka, Kalispell, Greenough, Plains and Lolo. It is warranted that a definition of these culture methods, oriented toward the layman, be given:

Stump culture--the practice wherein live branches are left on a live
stump of a small Douglas-fir (the stump remaining alive) and new trees are produced from adventitious shoots or branch turn-ups.

Basal pruning—the practice of eliminating undesired branches underneath a chosen good whorl (mid-point or at the bottom of the tree) thereby inducing better tree and branch structure and greater needle density.

Thicket thinning—the practice of removing badly deformed Douglas-fir and all other species of tree (including some merchantable trees) leaving differing degrees of crowding or spacing to allow for cultured growth in the remaining trees.

The results of the study showed that of the three methods tested, the stump culture method was the most successful, producing the largest number of trees that were above average both in quality and size. The pruning method did not significantly increase total Christmas tree production and the thicket thinning method varied—in the heavy thinning areas, more trees were produced initially whereas in the light and moderately thinned areas, there existed, 10 years later, 3 times as many trees capable of producing Christmas trees. Therefore, to aid the tribe, one must assume that the most fruitful culture method in developing natural stands is the stump culture method. However, in consideration of a future output of trees, one cannot overlook the benefit derived from using the thicket thinning method. Used concurrently with the stump culture method, the thicket thinning methods—more preferably the light to moderate thinning methods—would allow for more regulated future production; hence, a more future-oriented merchantable Christmas tree harvest.

To establish a plan of attack for the tribe, it is necessary to review the procedural steps of the two above-mentioned methods in the development
of improved natural stands. To begin each section below, relevant data, as recorded, will be given to define accomplishments in improving growing techniques.

Stump Culture.

In a comparison of the two types of stump tree origin—branch turn-ups and adventitious shoots—Mr. Schmidt determined that there were over three times as many turn-ups developed into Christmas trees as were shoots; fifty-nine percent treated to favor branch turn-up produced Christmas trees.

The procedural technique that was utilized was as follows:

The original trees, ..., were cut....about 4 inches above a good branch whorl. Stumps treated to favor branch turn-ups were trimmed to feature one large vigorous branch in the top whorl leaving 5 to 7 vigorous, alternate branches in the lower whorls. Stumps treated to favor adventitious shoots were trimmed so that all the branches on the upper 18 inches, and all but 5 or 7 vigorous, alternate branches in the lower whorls were removed.

Additionally, excess branches that were competing for space with the favor branches were removed and about half of the lower branches (of the new turn-ups) were pruned to reduce excessive height growth.

There exists no procedure for determining spacings; however, it is assumed that the desired approach would be to eliminate the deformed Douglas-fir trees and all other species, using the remaining stump base as the spacing element for growing the new trees. Likewise, there is nothing set-out directive of the care process administered to the newly developed natural tree plantation. Here, it is suggested that the process of caring for the trees be borrowed from the schedule of practices established in subsections above. A relevant schedule for natural tree plantations would begin at approximately the fourth year of the cultured tree schedule and would continue accordingly to harvest with but slight
variation. A suggested approach for establishment of the plantation will follow later.

**Thicket Thinning.**

In layman's terms, thicket thinning is exactly what the name implies. Many times, in Douglas-fir stands, the tree growth is dense enough to severely limit the overall development of individual trees. Consequently, the purpose of the thinnings operations on the five plots surveyed was to determine how three different levels of thinning affected the quality and quantity of the tree that could be harvested. Mr. Schmidt, in his analysis, based the results obtained on three classifiable estimates—light, medium and heavy thinning.

There existed not so much a procedural technique, but more of a criteria of thinning to follow. This criteria is set out below:

**Light**—badly deformed Douglas-fir and all other species removed plus a few merchantable Christmas trees. Residual stand was still crowded with an average spacing of less than two feet between trees.

**Medium**—badly deformed Douglas-fir and all other species removed plus some merchantable Christmas trees. Residual stand was less crowded than above, but there was still some side shading.

**Heavy**—badly deformed Douglas-fir and all other species removed plus many merchantable Christmas trees. Residual stand was moderately open with very little side shading.

Again, no procedure was given that established a practice of shaping the remaining trees. However, it is felt that the same practices suggested in the case of stump cultures would apply. Borrow the practices of the cultured plantation (subsection above) and develop a schedule to fit.
Moreover, it would appear that a variety of tree sizes could exist because, in the levels of thinning, different criteria applied; therefore, different sizes in trees are left standing according to the selectivity criteria used by the thinners.

One, by now, must think that the only avenues open to establishing the natural Christmas tree plantation are through the stump culture and thicket thinning methods. Not so, for the basal pruning method, as envisioned, finds a place most useful in setting up the plantation. It would be somewhat difficult to specify a set approach in establishing and managing the natural Christmas tree plantation on the Flathead Reservation for a number of reasons. (1) The manager will have to be quite selective in choosing his plantation sites; (2) the manager will have to critically analyze the marketability of trees on the sites chosen before initiating any culture method; (3) the manager is faced with a huge plantation establishment problem since the previous cutting has been randomly done and no one stand has been cultured for quality or form; and (4) the manager will have to negotiate some "revenue-sharing" plan with those individual tree cutters who, during the cutting season have (a) their pick of the trees to cut (under permit) within the confines of the reservation, and (b) rely upon their harvest as a source of income. Least it be inferred that such an attempt to establish natural Christmas tree plantations is not worthwhile, one should remember that the wild tree has, for over 35 years, supplied all the salable trees from the reservation. Outlining a few of the difficulties was done to show that the task will not be an easy one--much hard work will be required as the natural Christmas tree plantation will be more difficult to manage and less efficient.
Increased Christmas tree production can be achieved in natural stands of Douglas-fir by utilizing the different cultural methods. The emphasis then should be placed on the methods that hopefully will offer the most efficient and productive combinations. The following combination is offered as a guidepost for reaching the maximum output.

To begin, the manager must utilize all of the above described methods. The approach undertaken should combine some stump, some pruning, and some thicket thinning techniques to establish a future output. One has to realize that to use just one select method would reduce materially the expected results of the other two methods; therefore, a combination of all three is favored.

Fundamental to setting-up the natural plantation, the chosen site should be thinned. By this, it is meant as much clearing of waste as possible, should occur. Then, the combination of methods, stump, pruning, and thicket thinning, should be undertaken—the manager having cruised the area and so designated which process or combination of processes should be applied. The following material can serve as further guidelines whether applied singularly or in a combination to the natural trees.

Where stump culturing is needed:

1. Treat stumps of trees that have demonstrated desirable Christmas tree characteristics.

2. Cut the original tree above the second or third whorl of vigorous live branches.

3. Reserve as many as six or seven major branches to sustain the vigor of the stump. Favor two or more branches on alternative sides of the stump for turn-up trees by removing branches that are competing with them
for space. By favoring more than one turn-up tree at a time, excessive
leader growth can be more easily controlled.

4. Turn-up trees may be basal pruned to maintain satisfactory inter-
  nodal length because they often grow too fast.

Where pruning is needed:

1. Prune from the middle of the green crown, leaving two or three
good whorls of lower branches for subsequent stump culture.

2. Prune as often as necessary to maintain the desired internode
  length.

3. Shear to shape and increase the density of the crown.

4. Harvest cultured areas annually to assure maximum utilization of
trees when they are ready.

5. After harvesting, culture the stump for branch turn-up development.

The choice of thinning methods rests with the manager; however, the
heavy thinning produces more trees initially whereas, light to moderate
thinning yields more trees in subsequent harvests. As was noted in setting
up the site, this process should occur first. This condensed over-view of
a natural Christmas tree plantation is offered, as mentioned earlier, to
serve as a general guidepost of operations. It is not offered as the final
answer in that description of other cultural techniques (Wellner and Roe,
1947; Burlison and Pilkin, 1962; and Douglass, 1967) exists and might be
more feasible. Regardless of which technique or practice that is employed,
the quality and form of the natural tree must be enhanced if the tribe
expects to reinvigorate the selling potential of the local trees.
Water Utilization in the Overall Growth Process of Plantation Trees

One might by now be wondering why the review of Indian Water Rights and how it fits into the picture of growing Christmas trees on the Flathead Reservation? As was described earlier, an approximate amount of 18 inches of moisture per annum is necessary for good tree growth. It was further described on the reservation, that as one proceeds from east to west, the amount of moisture per annum decreases at an approximate rate of 1 inch per mile. If one were then to plan on growing a tree crop, he would locate his farm as near to the Mission Range (see map) as was possible because the largest amount of moisture is received there.

In essence, this is exactly what the tribe wants to do. They are faced, however, with a variety of problems. They do not have large holdings of prepared land available there. Their ownership of land, because of the earlier "taking" actions, is checker-boarded—small plots or acreages within their control; other plots or acreages in fee-patent beyond their control. Another of the problems is that the Flathead Irrigation Project begins immediately under the "A" Canal (the canal carrying water to the whole of the project) and this canal is located at the approximate base of the Mission Range. There are, however, a number of tribally or individually owned plots of trust land above the "A" Canal. These plots could serve as plantation sites for the cultured tree. It is on this defined acreage that the tribe expressed its desire in starting the Flathead Christmas Tree Program.

In beginning their operation the Tribe seeks to take advantage of three things:

1. Available moisture.
2. Compatible soil-tree conditions.

3. Accessibility for (a) supervision and enforcement of tribal regulations protecting the plantation trees, and (b) management functions—land regulation, preparation, production, control, etc.

It was with an eye for success that the request was made to gain the utility of these acreages for this program. Subsequently, the tribal plans call for the expansion of the Christmas Tree Plantation Program encompassing and including both the cultured and natural tree farm development in other areas of the reservation--this expansion is where the need for additional water will have its impact!

Indicatively, to grow trees anywhere else on the reservation other than at the base of the Mission Range will call for an increased water supply. Since there exists natural stands of Douglas-fir and other species of trees to the west of the Mission Mountains and since the tribe desires to begin preparation of the stands immediately (as natural Christmas tree plantations), the right to the water is in the forefront. Realizing that the Flathead Irrigation Project boundaries run to the Flathead River, the tribe, by its earlier defined rights, will not initially seek to control or obtain an apportionment to its "share" of the Project water but will tap other sources available to them.

Not wanting to lead one to believe that the water is to be used exclusively for the natural tree plantations, the cultured tree plantations are also included. Granted, a growing tree in its early stages may not absorb much water, but, in the later growth stages and in the periods of minimal rainfall the right to a supply of water would be to the tribe's best interest. With the additional supply under tribal control, the growth
cycle of a tree could be beneficially affected. The tribe would, therefore, be able to influence the cyclic-rotation period of their trees and, at the same time, utilize and hold their rights under Winters and other legal precedent.

To describe how much water and where it would come from or go to be used is beyond the scope of this paper. This decision would most likely rest with the manager in determining the moisture needs of his crop. It is enough to demonstrate that with the influx of an agricultural effort, the Flathead Tribes would have need for additional water. Seemingly, under their sovereign powers and under Winters, this right to exert police power control over the water (the same power imputed to the State of Montana under the proposed Constitution) would allow such an undertaking to be accomplished.

Continuing, it is important that an appropriate management system be developed to maximize the potential of this venture. It has been demonstrated many times over, that without adequate management most enterprises are doomed to failure—there need not be mentioned examples as plenty are evident (Indian and non-Indian) every day. Thus, in the next section, a management process for the Flathead Tribal Christmas Tree Program will be described.

A MANAGEMENT PROCESS FOR THE CONFEDERATED SALISH AND KOOTENAI TRIBAL CHRISTMAS TREE PROGRAM

One old timer in the (Christmas tree) business calculated that each Christmas tree cut here (on the Flathead Reservation) will change hands six times before Christmas morning. A tree will travel from cutter to tree yard, shipper, broker, salesman, etc. (the customer) while climbing in market value from $2.25 for 24 feet to a final sales price of perhaps a dollar a foot at the market on the other side of the mountain.
It is believed that through more efficient and effective management and resource utilization, a more competitive position can be gained for the Tribe in the Christmas tree industry and a better financial return made on their production potential.

**Financial Resources Available to Initiate and Operate the Program**

There exists, within the Federal-Indian trust relationship, a legislative enactment that allows the agent of the Federal Government—the Bureau of Indian Affairs—collection of a fee for administering the forestry program. This fee amounts to 10% of the value of total sales of Indian forestry resources, within a designated period. In effect, the Flathead Tribe pays the Bureau of Indian Affairs for a service administered for its benefit—the service being to protect, conserve, and improve their tribal resources (including the forests and the water). Supposedly, this administrative service has benefited the Tribe ab initio. As exemplified in Table 2, the Flathead Christmas Tree Program has steadily declined in financial returns and trees harvested. Moreover, one might question the operation of the Flathead Irrigation Project for the tribe's benefit; but this takes us away from the topic at hand. Efficient and effective management then is the charge of this trust responsibility. To say that this charge has to be lessened to permit the Flathead Tribe to initiate such a proposed undertaking would be in error. Such an undertaking would benefit both parties.

On one hand, the tribal program would elevate the detrimental and indiscriminate cutting of future "log" timber thereby allowing for an increased return to the tribe in years to come and for more adequate protection, conservation and improvement of the Indian resources under the
"administrative" duties of the Bureau. On the other, it would increase utilization of the existing labor potential of the reservation as would it up-grade the skills of the participants thereby allowing for increased Indian participation within the functional realm of Bureau responsibilities. Furthermore, the program could go far in identifying the areas of increased resource utilization and tribal rights—a benefit to both the tribe and the Bureau.

What this discussion is leading up to, is that the Bureau has an opportunity here to assume a more responsible and effective position in the development of tribal enterprises through utilization of the natural resources—an area over which the Bureau has control. Moreover, it is within the charge of their trust responsibility to do so. Therefore, what is suggested is that from the 10% administrative fee, the Bureau set aside a certain percentage to assist the tribe by providing:

1. Funds to employ a qualified manager (responsible and answerable to the Flathead Tribal governing body).

2. Funds aiding in the initial establishment of such a program:
   a. to prepare the necessary land
   b. to initiate the planting process (obtaining the seedlings)
   c. to contribute needed mechanical support necessary to lay out roads and fire lanes
   d. to contribute or obtain the needed expertise to insure success
   e. to supply on a continuing basis, the supervision and enforcement of tribal Christmas tree plantation regulations

3. Expertise to develop marketing and distribution channels for expansion of the program in the future.
It should not be inferred that the Bureau is abdicating its responsibility—it is assuming a more active position in the growth of the Flathead Tribe.

Consociated with this suggested effort on behalf of the Bureau of Indian Affairs, the Flathead Tribe could work to fill the void wherein the support is not offered or met by the Bureau. This tribal effort could possibly encompass the following areas:

1. Provide direction to the manager for program operation.
2. Develop funding for the labor force employed in maintaining to harvesting the crop.
3. Develop specific regulations protective of the plantations—cultured and natural.
4. Assist the manager in securing appropriate land sites.
5. Aid in the development of a plan of "revenue-sharing" to compensate those cutters who rely on the present program as a source of income.

Specific dollar amounts necessary to undertake such an operation are set out in the next section, page 53. Reference should be made there in order to relate a total cost figure to the program.

Alternatively, there exists the avenue open to the Flathead Tribe of funding the program in toto. This effort would result in absolute control over the operation, from allocating monetary resources through to the sale of trees to a consumer. It would give more fluidity and flexibility to the program even though the Bureau has regulatory control, at least implied under administrative policy, over the use of the resources. However, this approach is detrimental to the tribe and not within their mandate for setting up the program. This approach allows the Bureau to abdicate its responsibility to the tribe and deny the union of service which is described in the previous section.
An operation harmoneous to both parties is the best operation. Without the influence and expertise of the Bureau of Indian Affairs acting congruently with the interest of the tribe, the operation is immediately handicapped. In essence, it would be denied the substance of reality, the recognition that will be needed for the Flathead Tribe to exercise its powers. It would all but eliminate the grounds whereby the Flathead Tribe could exert its sovereign and Winters rights to regulate the water resources within the confines of the reservation. It would mean that instead of a supporter there would be a subverter at your side; in the face of tentative opposition, the tribe would be left alone to seek their rights and fight their battles, regardless of the good qualities of determining their individual approach.

Should one seek to question some other alternative, it must be said that the many Indian tribes of the United States are undertaking a multitude of programs designed to deliver operational responsibilities to these tribes alone. Incorporated within the newly assumed responsibilities is the element of independence— independence from regulations, guidelines, and technical assistance. This implied independence is not the desire of the tribe. They wish to continue the relationship with the Bureau, for in this manner the Bureau retains the operational functions of the Flathead lumber programs and others. Hence, they seek a partnership association with the Bureau in developing the plantation Christmas tree program. Therefore, the previous discussion on a cooperative undertaking is deemed to be the most advantageous approach to both parties. By utilizing the same funding base, the 10% administrative fee, the goals of both parties must be aligned together to produce the maximum results beneficial to each— without it, no
good will be achieved and the tribe would face an independent action believed to be quite detrimental to the plantation concept.

Since the final objective of this program is to make a profit, there needs to be established and defined the relationship of exemption from Federal Income Tax on income from trust properties applicable to Indian tribes. Basically, what this means is that the many Indian tribes do not pay Federal Income Taxes on their income if such income is derived from properties held in trust (for the Indian) by the United States. Impliedly, this same exemptive right had been extended to apply to state income tax, however, there is a case here in Montana at this time (Day v. State of Montana, et. al., _____ Montana _____ Roosevelt County District Court, April 20, 1972) testing whether or not an Indian rancher is liable for payment of state income taxes on income derived from his ranching enterprise--income obtained through the enterprise from trust properties. However, there exists two leading cases that establishes the Indian right of exemption, either as an individual or as a tribe, from payment of Federal Income Taxes on trust income.

The first case is one that arose in Washington and concerns the topic at hand--whether or not the income derived for the sale of timber on the reservation was taxable. It is Capoeman v. U.S. The second is a most recent case and deals with the issue of whether income from trust property obtained through inheritance, purchase, and lease was taxable. It is Stevens v. Commissioner of Internal Revenue and was decided on November 26, 1971 in the 9th Circuit Court. Both cases were decided in favor of the Indian. Accordingly, one can only guess as to the outcome of the Day case in District Court here in Montana.
Nevertheless, since there exists an Indian right of exemption to payment of Federal Income Tax, one would have to agree that any Indian enterprise, utilizing trust property, has a competitive advantage. Therefore, the management process, as set out in the following subsection, will have as its operational foundation, the right to use and possibly regulate water, the exclusive use of the land, and the attendant right of Federal Income Tax exemption. Keeping this foundation in mind, a more fluid and flexible management structure should be definable.

Operational Process (and Structure) with Labor Utilization in the Confederated Salish and Kootenai Christmas Tree Program

Of utmost importance to the successful accomplishment of this program will be the securing of a qualified manager. Without a doubt this one individual, initially, is to be the prominent figure in beginning the whole operation. On his shoulders will rest the future plans of the Flathead Tribe as related to the Christmas tree industry.

To define a complete operational heirarchy, one would begin with the Secretary, Department of the Interior, and work down to the program manager. For purposes of this paper, the controlling heirarchy will be limited to the Flathead Tribal Council. It is at this point that the expertise of the Bureau of Indian Affairs can be utilized. They could participate, through their branches of Forestry and Real Property management, in advising the tribe on land use, soil sample identification, water use, and other relevant areas beneficial to the success of this operation. They could further assist as described in the subsections above. Moving back to the Tribal Council, functionally this body should do four things: (1) they should hire the program manager, (2) they should set policy for program operations,
(3) they should oversee the financial operation through a proper informational flow system, and (4) they should give assistance to the manager in solving particularly sticky or difficult situations possibly encountered.

It follows logically that the individual sought to fill the manager position should have a background knowledgeable in forestry. Furthermore, he should be versed in the management area conducive to accomplishing the tasks outlined herein. It should be noted that nothing has been said or established as to how the actual program operation will run; what has been done is to outline a procedural approach for setting-up cultured and natural Christmas tree plantations along with a description of some attendant right influential to the future expansion of the program. One is limited in offering much more than this—there does not exist, as such, plantation farming of this kind on any other reservation that can be used for comparison. Neither is there a devining rod nor a crystal ball that will do or show the techniques to use or the paths to follow. The manager, in essence, will be plowing new ground in tribal development and must learn by trial and error. Additionally, experiences of other growers in this region of Montana will be beneficial to the manager, but not one of these growers has ever grown or harvested a Christmas tree under the conditions or rights defined herein.

Least it be stated that the risk is too high and the gamble too great, there exists now on the reservation, a Christmas tree program that, in the long run, can be demonstrated to be very detrimental to the future of the Flathead Tribal timber program (see Table 2). If this plantation program is successfully implemented and the future of the Tribal timber program enhanced, then is not the risk "riskable" and the gamble worth gambling for?
In support thereof, as a means to reduce the risk, the following suggestions are offered for consideration as incorporable into the operational structure.

Referring to Table 3, it is evident that specific practices can be proportionately defined in the overall schedule of practices. Hereafter, it shall be assumed that a working day consists of eight hours per day per acre and that an hourly wage of $2.00 per hour is appropriate. It is further assumed that a labor force is available and that the determinations made will be based on a five-man crew.

From the available information obtained, an estimated 1000 seedlings, at 6'x 6' spacings, can be planted on an acre. With hand planting, one man can plant an estimated 400 to 500 seedlings per day. Therefore, the manager can schedule his planting practice to insure maximum output on the acreage he selects. In this instance, the time, and therefore, the labor cost can be closely controlled. Thus, to plant, say a 10 acre plot, it would take a five-man crew 5 days at 8 hrs./day at $2.00/hr. or 200 hours time and $400.00 cost. Needless to say, proper planting is crucial in the initial program; it could determine the success or failure of tree growth. Moving on, the manager knows from the tables that 5/8 of his total crop will be sheared each year. Considering that shearing will take place from June to August, he can schedule for approximately 10 weeks time to shear the appropriate trees. Thus, on a 10 acre plot, he uses 2,000 hours time at $4,000 cost. Harvesting would follow and could be just as specifically time and cost identified. Checking the tables, it is found the harvesting will be spread over two blocks in any year. Therefore, an appropriate schedule could be identified also for time and cost. Here, an applicable
time period of 3 weeks is required. Thus, a 3 weeks work period would give 600 hours time and $1,200 cost. Considering the appropriateness of the schedule of practices and Table 3, the manager could fairly well develop an operational structure for his whole farming area, either dividing his crews to work the cultured and natural tree plantations, or alternatingly, varying the work-load to each of the respective plantations. He could, therefore, maximize the use of the available labor force by developing more and larger plantations, maximizing the quality and form of the trees by securing skill-training to insure better culturing techniques, and minimize the cost through analysis of the work required to be performed.

Other operational practices are suggested. Colorant should be applied in the early fall to those trees marked for harvest. This is suggested to improve the general appearance of the tree. Weed suppressants and chemical fertilizer application could also be scheduled and are defined as assumptions. Another area wherein operational schedules can be developed is in baling—mostly done now using a netting of plastic called vexar. Operational scheduling practices for time and cost could also be applied to the area of transportation and delivery of trees to a buyer. A further description of additional area wherein the operational structure of the program is defined is unnecessary since, to manage the plantations, a comprehensive plan of managed services must be set up congruent with the areas selected and plantation size developed.

One last thing must be mentioned, however, before moving on. Earlier, reference was made to a "revenue-sharing" plan with the present tree cutters. As things now stand, these cutters have the entirety of the reservation from which to choose and cut Christmas trees. With an acceptance of and a go
ahead given to this particular program, these cutters will undoubtedly be
denied access to the more choice tree areas. As a means whereby the
inequity done to these cutters will not be too severe, the following alter­
natives are offered:

1. That they be employed at the prescribed wage rate, with a percent
of plantation revenue earned reimbursed to them, placing them at an average
five year income figure in line with what they earned as cutters.

2. That they continue to harvest wild trees as before, but establish
eligibility to place them at average income (as in 1 above) if below the
determined figure.

3. That they be employed and reimbursed as in 1 above, but set up
on a plot to develop as an independent farmer, and upon crop-rotation
maturity, be removed as employees--operating then as independent Christmas
tree grower with the attendant responsibilities and benefits.

The following section will deal with the cost study and market feasi­
bility of such a Christmas tree growing enterprise on an Indian reservation.

FEASIBILITY OF MARKETING CHRISTMAS TREES GROWN ON THE RESERVATION

Consumer demand controls almost every aspect of the Christmas tree
business. In western Montana, the large Christmas tree corporations
(Hoffert, Snowline and Kirk Companies) almost completely control the
marketing channels to the major consumer centers. As wholesales and major
suppliers, these corporations, in effect, become the image of "consumer
demand" locally. It is a situation most applicable to the marketing of
Christmas trees harvested on the Flathead Reservation. Because of
established custom and because buyers permits (see Appendix 1) are
required under regulatory and control responsibilities, the major markets for the Indian cutters are these buyer corporations--buying at delivery yards set up throughout the reservation under permit. The apparent inequity of this arrangement is that these companies can determine and maintain their own price rates for Christmas trees. In essence, the Indian tree harvest "belongs" to these companies just as effectively as if the trees were grown on their own land, albeit, without the attendent costs, expenses, or responsibilities.

It must therefore be understood that there is not now available nor has there been an open channel of distribution for reservation grown Christmas trees to a consumer market. The Indian cutters are basically tied to the major buying companies in the area through persuasion by influenced regulation. In compliance therewith, and as a trade-off, the regulations require that the permittee buyer pay a price of $2.25 per bale exclusive of grading and baling costs. This is a change from the early 1950's when a higher price per bale was required including grading and baling costs. Therefore, a price of $2.25 per bale will be utilized as a minimum market price for reservation trees in the following analysis although somewhat higher prices are received.

A Comparative Cost Analysis of Christmas Tree Production in the Big Fork and Flathead Reservation Areas

In order to make a comparison on the costs, from the data available, the 8th year costs of an 8-year rotation cycle will be used as the base (an approximate first full harvest). In both areas, the plot size used is an acre--from this basis, multiply by additional plot increases to obtain expanded totals.
Normally, the largest single investment common to Christmas tree production with which a manager must deal is land. Considering this investment requirement applicable to an Indian reservation, the land has zero costs. Conversely, the land has to be acquired for a non-reservation enterprise. The cost per acre of land available in the Big Fork area is, on the average, worth $350.00 per acre on the open market. One need only multiply this price per acreage utilized to establish the amount of this investment. In this realm of costs, there exists a size constraint on the non-Indian operation whereas there exists none as such on the Indian operation. This is not to say that the land is "free"--there will have to be some utility trade-off (grazing, "log" timber, etc.) although the difference is not demonstrated herein.

In order to further estimate expenses for comparative purposes, one must be concerned additionally with the following three primary areas: (1) supply, (2) labor, and (3) equipment costs. Thus, the costs described below are based upon estimates obtained from the Bureau of Indian Affairs and the Flathead Tribe in providing service to the reservation area. The cost to clear land runs about $22.50 per hour (depending upon size of equipment used); to fence one acre, approximately $200.00 for labor and materials (barbed wire purchased at $14.00 per 80 rod roll and wood posts @ $.50); to fence one mile, approximately $800.00; and for building a single access road, approximately $300.00 per acre.

It is most likely that the following investment must be made in machinery, equipment and supplies to prepare and care for one acre of trees. It is possible that the resulting cost figure might be lower since the tribe does have available material that could serve the plantation effort
or that the tribe could obtain the required material, as surplus, through the Government Service Administration. However, these are possibilities—
on with the determination.

<table>
<thead>
<tr>
<th>Machinery/Equipment/Supplies</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. One small (rubber-tire) tractor</td>
<td>$4,000.00 (used)</td>
</tr>
<tr>
<td>2. One 2-bottom plow</td>
<td>500.00</td>
</tr>
<tr>
<td>3. One harrow/disk (6'x 6')</td>
<td>200.00</td>
</tr>
<tr>
<td>4. One roller</td>
<td>200.00</td>
</tr>
<tr>
<td>5. One cultivator</td>
<td>350.00</td>
</tr>
<tr>
<td><strong>Sub-total: $5,250.00</strong></td>
<td></td>
</tr>
</tbody>
</table>

The following listed items could be used also in setting up the natural tree plantations:

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. Two portable sprayers</td>
<td>120.00</td>
</tr>
<tr>
<td>7. Chemicals needed</td>
<td></td>
</tr>
<tr>
<td>a. weed suppressant—Simazine 4g ($25 to $30/m trees)</td>
<td>30.00</td>
</tr>
<tr>
<td>b. fertilizer ($25 to $30/m trees)</td>
<td>30.00</td>
</tr>
<tr>
<td>8. Shearing knives (5/crew @ $10)</td>
<td>50.00</td>
</tr>
<tr>
<td>9. Leg guards (5/crew @ $7.50)</td>
<td>37.50</td>
</tr>
<tr>
<td>10. No-cut protective gloves (5/crew @ $10)</td>
<td>50.00</td>
</tr>
<tr>
<td>11. Pruning saws (5/crew) @ $7.50</td>
<td>37.50</td>
</tr>
<tr>
<td>12. Tree planting bags (5/crew @ $6) and planting bars</td>
<td>30.00</td>
</tr>
<tr>
<td><strong>Sub-total: $385.00</strong></td>
<td></td>
</tr>
</tbody>
</table>

Total Machinery/Equipment/Supplies: $5,515.00

In the analysis that follows, the comparative relationship will be demonstrated via a practices per year, cost-budgeted method. From the cost-budget analysis, an 8th year rotation cost picture can be developed and
thus a production cost per tree defined. To facilitate this analysis, it is assumed that labor costs have a zero cost value because these helpers could be obtained, as employables, through the tribally-run Welfare Program—the welfare recipients could earn their checks vis-a-vis doing nothing and receiving welfare. The tribe will have incurred the cost of the Welfare Program regardless of whether or not the Christmas Tree Program is initiated; thus, utilize the labor potential therein available to enhance the picture on Christmas tree plantations.

Practices/Year—Sample Budget (Reservation).

Site preparation—1 acre.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Machinery</th>
<th>Equipment**</th>
<th>Supplies</th>
<th>Labor Costs*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site Clearing</td>
<td>176.00</td>
<td>66.00</td>
<td>66.00</td>
<td></td>
</tr>
<tr>
<td>Summer Fallow</td>
<td></td>
<td>15.00</td>
<td>15.00</td>
<td></td>
</tr>
<tr>
<td>Fencing (wire, posts, etc.)</td>
<td></td>
<td>100.00</td>
<td>100.00</td>
<td></td>
</tr>
<tr>
<td>Road Construction</td>
<td></td>
<td>300.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Machinery</td>
<td>5,250.00</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$5,250.00 $476.00 $100.00 $181.00

Total Site Preparation Costs: $6,007.00
Year one.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Machinery</th>
<th>Equipment**</th>
<th>Supplies</th>
<th>Labor Costs*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Chemical Application</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Weed suppressant</td>
<td></td>
<td>30.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Fertilizer</td>
<td></td>
<td>30.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Purchase 2-1 stock</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Planting</strong></td>
<td></td>
<td></td>
<td></td>
<td>27.00</td>
</tr>
<tr>
<td><strong>Cultivate (3 times)</strong></td>
<td></td>
<td>45.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>General Labor Available</strong></td>
<td></td>
<td></td>
<td></td>
<td>500.00</td>
</tr>
<tr>
<td>0</td>
<td>45.00</td>
<td>105.00</td>
<td>527.00</td>
<td></td>
</tr>
<tr>
<td><strong>Total Year One Costs:</strong></td>
<td>$677.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cumulative Total:</strong></td>
<td>$6,684.00</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Year two.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Machinery</th>
<th>Equipment**</th>
<th>Supplies</th>
<th>Labor Costs*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cultivate (3 times)</td>
<td></td>
<td>45.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basal Prune</td>
<td></td>
<td>40.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hand Weeding (2 times)</td>
<td></td>
<td>26.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purchase Replacement Stock</td>
<td></td>
<td>4.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plant Replacement Stock</td>
<td></td>
<td>14.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemical Application</td>
<td></td>
<td>60.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>General Labor Available</strong></td>
<td></td>
<td></td>
<td></td>
<td>500.00</td>
</tr>
<tr>
<td>0</td>
<td>45.00</td>
<td>64.00</td>
<td>580.00</td>
<td></td>
</tr>
<tr>
<td><strong>Total Year Two Costs:</strong></td>
<td>$689.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cumulative Total:</strong></td>
<td>$7,373.00</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Year three.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Machinery</th>
<th>Equipment**</th>
<th>Supplies</th>
<th>Labor Costs*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cultivate (3 times)</td>
<td></td>
<td>45.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hand Weeding</td>
<td></td>
<td></td>
<td></td>
<td>26.00</td>
</tr>
<tr>
<td>Chemical Application</td>
<td></td>
<td></td>
<td></td>
<td>60.00</td>
</tr>
<tr>
<td>General Labor Available</td>
<td>0</td>
<td>$45.00</td>
<td>$60.00</td>
<td>$526.00</td>
</tr>
</tbody>
</table>

Total Year Three Costs: $631.00
Cumulative Total: $8,004.00

Year four.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Machinery</th>
<th>Equipment**</th>
<th>Supplies</th>
<th>Labor Costs*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cultivate (3 times)</td>
<td></td>
<td>45.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hand Weeding</td>
<td></td>
<td></td>
<td></td>
<td>26.00</td>
</tr>
<tr>
<td>Shearing</td>
<td></td>
<td></td>
<td></td>
<td>40.00</td>
</tr>
<tr>
<td>Select Tree Clearing</td>
<td></td>
<td></td>
<td></td>
<td>26.00</td>
</tr>
<tr>
<td>General Labor Available</td>
<td>0</td>
<td>$45.00</td>
<td>0</td>
<td>$592.00</td>
</tr>
</tbody>
</table>

Total Year Four Costs: $637.00
Cumulative Total: $8,641.00
Year five.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Machinery</th>
<th>Equipment**</th>
<th>Supplies</th>
<th>Labor Costs*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shearing</td>
<td>33.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basal Prune &quot;Handle&quot;</td>
<td>33.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hand Weeding</td>
<td>26.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemical Application</td>
<td>60.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Labor Available</td>
<td>500.00</td>
<td></td>
<td>$60.00</td>
<td>$592.00</td>
</tr>
</tbody>
</table>

Total Year Five Costs: $652.00
Cumulative Total: $9,279.00

Year six.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Machinery</th>
<th>Equipment**</th>
<th>Supplies</th>
<th>Labor Costs*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cultivate (3 times)</td>
<td>45.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shearing</td>
<td>33.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hand Weeding</td>
<td>26.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Labor Available</td>
<td>500.00</td>
<td></td>
<td>$45.00</td>
<td>$559.00</td>
</tr>
</tbody>
</table>

Total Year Six Costs: $604.00
Cumulative Total: $9,883.00
Year seven.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Machinery</th>
<th>Equipment**</th>
<th>Supplies</th>
<th>Labor Costs*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shearing</td>
<td></td>
<td></td>
<td></td>
<td>14.00</td>
</tr>
<tr>
<td>Flag and Color Trees</td>
<td></td>
<td></td>
<td></td>
<td>30.00 26.00</td>
</tr>
<tr>
<td>Harvest Select Trees</td>
<td></td>
<td></td>
<td></td>
<td>40.00</td>
</tr>
<tr>
<td>(100 trees @ $.40)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Labor Available</td>
<td></td>
<td></td>
<td></td>
<td>500.00</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>$30.00</td>
<td>$580.00</td>
</tr>
<tr>
<td>Total Year Seven Costs:</td>
<td></td>
<td></td>
<td></td>
<td>$610.00</td>
</tr>
<tr>
<td>Cumulative Total:</td>
<td></td>
<td></td>
<td></td>
<td>$10,493.00</td>
</tr>
</tbody>
</table>

Year eight.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Machinery</th>
<th>Equipment**</th>
<th>Supplies</th>
<th>Labor Costs*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shearing</td>
<td></td>
<td></td>
<td></td>
<td>14.00</td>
</tr>
<tr>
<td>Flag and Color Trees</td>
<td></td>
<td></td>
<td></td>
<td>60.00 40.00</td>
</tr>
<tr>
<td>Harvest and Market Trees</td>
<td></td>
<td></td>
<td></td>
<td>320.00</td>
</tr>
<tr>
<td>(800 @ $.40)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Labor Available</td>
<td></td>
<td></td>
<td></td>
<td>500.00</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>$60.00</td>
<td>$874.00</td>
</tr>
<tr>
<td>Total Year Eight Costs:</td>
<td></td>
<td></td>
<td></td>
<td>$934.00</td>
</tr>
<tr>
<td>Cumulative Total:</td>
<td></td>
<td></td>
<td></td>
<td>$11,427.00</td>
</tr>
</tbody>
</table>

*Labor Costs—Tribally supported labor through Welfare Program

**Equipment—Equipment can be used on both the cultured and natural plantations.
To start an operation, an amount equal to $11,462.00 will be required to produce the first harvest. However, it is not realistic to charge to one acre, the full costs of this start-up; this cost would be disbursed throughout the total acreage planted at the end of the first harvest (on the approximate 8th year). Therefore, deleting site preparation costs in the 8 year cycle will give a more realistic production cost. Furthermore, the total general labor activity costs should be disregarded as they were included as the amount receivable through the Tribal Welfare Program and would more aptly apply to the schedule of practices set out earlier. With these two deletions (Site Preparation and General Labor Activity Costs) the following 8th year data analysis can be derived from comparison with the 8th year data of the Big Fork Area.

**Sample Budget--8th Year Analysis (Reservation).**

<table>
<thead>
<tr>
<th>Operation/Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxes</td>
<td>0</td>
</tr>
<tr>
<td>Summer Fallow</td>
<td>15.00</td>
</tr>
<tr>
<td>Planting Stock (2-1) (per M)</td>
<td>45.00</td>
</tr>
<tr>
<td>Labor and Machine Cost - Planting</td>
<td>49.00</td>
</tr>
<tr>
<td>Chemical Application ($30/M) (4 yrs.)</td>
<td>240.00</td>
</tr>
<tr>
<td>Replacement Stock</td>
<td>6.00</td>
</tr>
<tr>
<td>Planting - Replacement Stock</td>
<td>13.50</td>
</tr>
<tr>
<td>Cultivating (3 times/yr. @ $45/hr. x 5 yr.)</td>
<td>225.00</td>
</tr>
<tr>
<td>Shearing ($33/hr. x 5 yr.)</td>
<td>165.00</td>
</tr>
<tr>
<td>Basal Pruning/Trim (1 yr. x $40; 1 yr. at $33)</td>
<td>73.00</td>
</tr>
<tr>
<td>Hand Weeding ($26/hr. x 5 years)</td>
<td>130.00</td>
</tr>
<tr>
<td>Harvest and Marketing (900 trees @ $.40)</td>
<td>360.00</td>
</tr>
</tbody>
</table>

Total Outlay (without interest): $1,321.50

**Interest Costs**

Interest is figured at 6 percent compounded annually.
Interest Items

<table>
<thead>
<tr>
<th>Interest Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest on Land (8 years)</td>
<td>0</td>
</tr>
<tr>
<td>Interest on Taxes (8 years)</td>
<td>0</td>
</tr>
<tr>
<td>Interest on Summer Fallow</td>
<td>8.90</td>
</tr>
<tr>
<td>Interest on Planting Stock &amp; Planting (7 years)</td>
<td>42.76</td>
</tr>
<tr>
<td>Interest on Chemical Application (7 years)</td>
<td>120.97</td>
</tr>
<tr>
<td>Interest on Replacement Stock &amp; Planting (7 years)</td>
<td>9.82</td>
</tr>
<tr>
<td>Interest on Cultivation (7 years)</td>
<td>109.93</td>
</tr>
<tr>
<td>Interest on Shearing (6 years)</td>
<td>69.06</td>
</tr>
<tr>
<td>Interest on Basal Pruning/trim (6 years)</td>
<td>30.55</td>
</tr>
<tr>
<td>Interest on Hand weeding (6 years)</td>
<td>54.39</td>
</tr>
</tbody>
</table>

Total Interest Costs: $446.35

Thus, the total estimated cost of bringing a crop of Scotch Pine Christmas trees through an 8 year rotation in the reservation area is $1,321.50 + $446.35 = $1,767.85. Assuming 1000 trees/acre with 90% recovery, there are then merchantable 900 trees. On this basis, the production cost per tree is $1767.85 \div 900 = $1.96.

Data Budget—8th Year Analysis (Big Fork).

<table>
<thead>
<tr>
<th>Operation/Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxes (8 yr. @ $2.00/yr.)</td>
<td>16.00</td>
</tr>
<tr>
<td>Summer Fallow</td>
<td>20.00</td>
</tr>
<tr>
<td>Planting Stock (2-1) (per M)</td>
<td>45.00</td>
</tr>
<tr>
<td>Labor and Machine Cost - planting</td>
<td>36.00</td>
</tr>
<tr>
<td>Chemical Usage ($30/M) (4 yr.)</td>
<td>240.00*</td>
</tr>
<tr>
<td>Replacement Stock, 2nd growing season</td>
<td>4.00</td>
</tr>
<tr>
<td>Planting of replacement stock</td>
<td>15.00</td>
</tr>
<tr>
<td>Shearing (6 yr. @ $30/yr.)</td>
<td>180.00</td>
</tr>
<tr>
<td>Basal Prune, 2nd yr. in field</td>
<td>40.00</td>
</tr>
<tr>
<td>Cultivation (3 times/yr. @ $6 for 6 years)</td>
<td>108.00</td>
</tr>
<tr>
<td>Hand weeding (2 times/yr. @ $16 for 6 years)</td>
<td>192.00</td>
</tr>
<tr>
<td>Harvesting &amp; Marketing (800 trees @ $.40 ea.)</td>
<td>320.00</td>
</tr>
</tbody>
</table>

Total Outlay (without interest): $1,216.00

*Data received external to subscribed data.

Interest Costs

Interest is figured at 6% compounded annually.
<table>
<thead>
<tr>
<th>Interest Items</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest on $350/acre land (8 years)</td>
<td>207.83</td>
</tr>
<tr>
<td>Interest on taxes (8 years)</td>
<td>4.98</td>
</tr>
<tr>
<td>Interest on Summer Fallow (8 years)</td>
<td>11.88</td>
</tr>
<tr>
<td>Interest on Planting Stock &amp; Planting (7 years)</td>
<td>40.79</td>
</tr>
<tr>
<td>Interest on Chemical Usage (7 years)*</td>
<td>120.97</td>
</tr>
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<td>Interest on Replacement Stock and Planting (6 years)</td>
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<td>Interest on Shearing (6 years)</td>
<td>41.82</td>
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<td>Interest on Basal Pruning (6 years)</td>
<td>16.74</td>
</tr>
<tr>
<td>Interest on Cultivation (6 years)</td>
<td>25.08</td>
</tr>
<tr>
<td>Interest on Hand Weeding (6 years)</td>
<td>44.59</td>
</tr>
</tbody>
</table>

Total Interest Costs: $522.63

*Same as above--Operation/Item.

The total cost per acre to bring a crop of Scotch Pine Christmas trees through a 7 year rotation in the Big Fork area is $1,216.00 + 522.63 = $1,738.63. The grower estimated an 80% recovery (fewer trees planted per acre--990) which gives a merchantable harvest of 793 trees per acre. On this basis the production cost per tree is $1,783.63 ÷ 793 = $2.19.

Comparatively, utilizing as a basis the method of computation for the companies in the Big Fork Area, the production costs per tree are lower for the Reservation Area ($2.19 to $1.96). It must be recognized, however, that the advantage lies with the Tribe because of the leverage factors available to them--the land, lower priced labor, no taxes, etc. Conversely, experience is the commodity available to the non-Indian growers and they are much advantaged in that realm of growing and producing good quality trees. There is yet another area of costing not covered here and that is the area of the natural Christmas tree plantation on the reservation. The analysis undertaken above was in the main, that of the cultured tree; most likely, with the culturing of trees in the natural stands, a somewhat higher production cost will be incurred. How much of a cost increase it will be, at this time, would only be an extreme estimate. About the only valid
statement one could make in reference to the natural Christmas tree plantation is that it would be less efficient and more difficult to operate.

Even though, assumingly, the trees can be produced at a lower cost per tree on the reservation, the monetary return from the venture must be considered. As was mentioned earlier, the sale price of the Indian trees was set at $2.25/bale for wild trees. To develop an overview of the return applicable to this undertaking the analysis will be done in two parts—(1) figuring a monetary return at the set price, and (2) figuring a monetary return at the going price for a cultured or improved wild tree. The bale consists of approximately 4 trees (6 feet in length) or a combination total of 24 linear feet.

**A First Harvest Monetary Return Analysis: Two Applicable Selling Prices--Per Bale and Per Tree**

Beginning with the selling price established by regulation, the Flathead Christmas tree program would lose money. With an estimated production cost of $1.96 per tree and a requirement stipulating that the permittee buyer purchase the Indian trees at a minimum of $2.25 per bale, the program should not even be considered as an undertaking. The figures below (on one acre) demonstrate why.

**First Year Harvest - 900 trees per acre.**

**Production Costs per Tree - $1.96**

**Total Production Costs per Acre - $1,764.00**

**Purchase Price (by regulation) - $2.25 per bale.**

**Number of trees per bale (average) - 4 trees (24 linear feet).**
Loss on sale of cultured trees:

Required: 4 trees (1 bale) x $1.96/tree (production costs) : $7.84

Obtained: 1 bale (4 trees) x $2.25/bale (regulatory prices) : $2.25

Loss on sale (4 cultured trees) $5.59

On one acre of production, there would be available approximately 225 bales of trees; at $2.25 per bale, the grower would receive total revenue of $506.25 per acre to cover his production costs of approximately $1,764, when in reality he should receive a minimum of $7.85 per bale to cover his costs. Realizing that in harvesting wild trees, the cutters are not concerned with the elements of cultured tree growth or of establishing practices to improve or enhance the quality of the trees. He is mainly concerned with having enough small trees available from which he might harvest a crop for sale. Under the present modus operandi, there exists no production costs per tree and the cutter is saddled only with his cutting equipment, his labor, and a means to transport the trees to a buying yard. To him, these costs are irrelevant and would be meaningless as indicators of expenses which ultimately effect his return. As far as any measures of cost per tree are computed, it will suffice to say that the final return on the number of bales sold is the only area wherein figures are maintained.

Regardless of the revenue earned, if a bale consists of 4 trees and sells for a minimum price of $2.25/bale, one tree is therefore worth only $.56. Assumedly, if the total costs to cut and deliver a wild tree to the buying yard are lower than $.56, then the cutter can say he made a profit; if not, he loses. The question then remains, "Is the cutting of wild Christmas trees on the reservation beneficial (economically) in the utilization of Indian resources?" No answer will be forthcoming in this
paper; although it is believed that one is deserved and should be offered by those most directly concerned—the Bureau of Indian Affairs and the Tribal Council.

Therefore, to formulate and initiate a cultured Christmas tree program under the regulated marketing price available would be folly. The program manager could come nowhere near lowering costs enough such that a profit could be attained on the sale of cultured trees, either planted or natural. What is needed is to receive a compatible price, reflective of the costs to produce and of the increased quality of the trees, so as to operate profitably. This reflection in price is the substance of the following section.

As has been demonstrated earlier, the resources potentially available to the Flathead Tribe would allow for production of cultured Christmas trees if a higher price was acquired per bale ($7.85 or better) or per tree ($2.00 or more). Without this re-alignment in pricing, the effort will be for naught; marketing trees costing approximately $1.96 per tree to produce for less than either of the above stated prices is giving them away—the buyer will benefit, not the seller.

If the marketing price per tree was received that is available on the open market, $3.00 per tree, the program would be worthwhile in the undertaking. To receive this price, the productiveness of the program would be reflected throughout the whole of the production cycle—the Tribe would benefit by increased resource utilization including expanded water usage and "ownership", increased returns, and more appropriate involvement of the labor pool; the individual member would benefit by increased income, more work, and better markets; the Bureau of Indian Affairs would receive a larger 10% administrative fee; and the buyer companies would receive
better quality and more merchantable trees. To demonstrate the increased returns, the following computations are given:

First year harvest - 900 trees per acre.
Production costs per tree - $1.96
Total production costs per acre - $1,764.00

Market price (quality trees) available - $3.00 per tree
Number of trees merchantable per acre - 900 trees

Gain on sale of cultured trees:
Revenue: 900 trees x $3.00/tree = $2,700.00 per acre
Expenses: 900 trees x $1.96 (costs) = $1,764.00 per acre
Income on sale: $ 936.00 per acre

There is assumed in the above computation, full marketing of harvestable trees and purchasing at market value. However, the relationship between the tribe and the buyer companies will have much to do with attaining an appropriate buying price by the time the trees are ready to cut. It is hoped that some future arrangement could be worked out beneficial to all parties concerned. Realizing that a potential return of $936.00 per acre is available on the sale of reservation trees, it is likely that this effort will strain existing relationships. If one multiplies the optimal return ($936.00 per acre of trees) times an increased number of acres of trees planted and harvested, the influx of trees will adversely effect the Christmas tree industry of western Montana.

It must be recognized that the above analysis is but an overview of an existing potential, not an intricate, in-depth feasibility study of the marketing potential available to a tribal Christmas tree venture such as this.
It must be further recognized that the writer lacks the expertise to accomplish this task and suggests that an appropriate in-depth feasibility study be contracted for to carry out this function. As noted, this paper was concentrated more in the production and resource utilization areas rather than in defining and establishing markets. For comparative purpose, the regulation price ($2.25 per bale) was used to show the need for an increased market price and, hence, possibly completely new marketing channels, along with the attendant function therein.

The following suggestion is offered to the Flathead governing body as a guide to developing their own marketing approach.

The study should consider feasibility in terms of investment profitability and risk and employment opportunities arising out of an organizational structure incorporated in the whole of the marketing design. It should evaluate the various forms of distribution and communication systems, and, if feasible, institute such a marketing program as appropriate within the objectives and policies of the Flathead Christmas Tree Program.
Chapter 3

CONCLUSION

Should the Flathead Tribe engage in the development of Christmas tree plantations under the present situation, utilizing available resources of the reservation, is the premise put forth herein. Considering the economic gain from the established regulations for market price, the answer has to be no. Considering the social and legal gains even though the economics of the situation dictate a negative response, the answer should be yes. One must view the total potential involvement of the reservation as the item of primary concern—not just engaging in growing Christmas trees as the primary concern.

In the world of the American Indian today, there is an ever increasing move toward self-realization in tribally initiated projects. It is most important, even though an undertaking might not be initially feasible, that attempts such as the one proposed above be tribally run and operated for the benefit of the Indian member. This is not to infer that the tribe forego the opportunity of the tree-farming effort because, at first, there is not a profitable return. There are avenues open to the tribe to correct and support the sale of cultured trees. What is stated is that if operated under the restrictive market price now, the enterprise is unfeasible.

As was demonstrated, the production costs per tree for reservation trees can be lower than those costs for non-reservation trees. The tribe has the competitive advantages in their favor and can optimize these to their benefit. Furthermore, its claim and utilization of available water can allow them an enhanced position in future endeavors, whether agricultural
in nature or not, concerning their other tribal resources (mining, recreation, etc.) Employment problems abound on most reservations in the United States and, consociated with possibly other Federally funded programs (Office of Economic Opportunity, Department of Labor, and others), a tribal effort such as this would benefit its tribal member immediately.

What is needed to insure a more secured position approaching success here is to develop first a new market price for cultured trees. Beginning a culture program for both wild and planted trees would result in better quality trees and more clearly regulated yields. Production in both areas would mean that the wild plantation tree would reach the market first, it has a head start in growth, and a new price could be agreed upon between buyer and seller. Secondly, in seven or eight years, the planted trees would be merchantable and a new pricing arrangement established here. On the other hand, a completely separate marketing program could be developed to facilitate the expanded production in trees as suggested above. Under either of the above approaches, the answer should be go ahead and give it a try—buy the best consultant help available, find a qualified and knowledgeable manager and try—as it might be right not the resources are being given away for the price per bale of wild trees!
Table 1. History of Christmas Tree Harvest (5 year increments)

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Bales Harvested</th>
<th>Total Number of Trees</th>
<th>Gross Tribal Income (stumpage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970*</td>
<td>48,679</td>
<td>194,716</td>
<td>0</td>
</tr>
<tr>
<td>1965</td>
<td>28,226</td>
<td>112,904</td>
<td>17,151</td>
</tr>
<tr>
<td>1960</td>
<td>89,901</td>
<td>359,604</td>
<td>54,247</td>
</tr>
<tr>
<td>1955</td>
<td>110,190</td>
<td>440,760</td>
<td>49,586</td>
</tr>
<tr>
<td>1950</td>
<td>115,958</td>
<td>463,832</td>
<td>52,181</td>
</tr>
<tr>
<td>1945</td>
<td>89,216</td>
<td>356,864</td>
<td>35,686</td>
</tr>
<tr>
<td>1940</td>
<td>94,360</td>
<td>377,440</td>
<td>37,744</td>
</tr>
<tr>
<td>1936</td>
<td>102,840</td>
<td>411,360</td>
<td>41,136</td>
</tr>
</tbody>
</table>

*See new 1970 regulations.
<table>
<thead>
<tr>
<th>Year</th>
<th>No. Bales Harversted</th>
<th>Total No. Trees*</th>
<th>Number of Permits**</th>
<th>Gross Tribal Income</th>
<th>Income to Tribal Members</th>
<th>Total Vol. Loss 30 Years Hence (MBM)</th>
<th>Value of Timber Loss Based on $40.00 MBM</th>
<th>Present Value of Timber Loss (6% Discount Rate)</th>
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<tbody>
<tr>
<td>1969</td>
<td>54,240</td>
<td>231,560</td>
<td>278</td>
<td>$ 0***</td>
<td>$122,136.66</td>
<td>6,947</td>
<td>$ 277,880</td>
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<tr>
<td>1968</td>
<td>26,138</td>
<td>119,052</td>
<td>274</td>
<td>15,682.75</td>
<td>36,593.20</td>
<td>3,572</td>
<td>142,880</td>
<td>24,875</td>
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<tr>
<td>1967</td>
<td>28,823</td>
<td>130,692</td>
<td>291</td>
<td>17,293.58</td>
<td>40,352.20</td>
<td>3,921</td>
<td>156,840</td>
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<td>1966</td>
<td>29,811</td>
<td>134,844</td>
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<td>41,735.40</td>
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<td>3,879</td>
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<td>1964</td>
<td>32,352</td>
<td>149,308</td>
<td>375</td>
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<td>45,292.80</td>
<td>4,479</td>
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<td>1963</td>
<td>39,790</td>
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<td>394</td>
<td>23,873.81</td>
<td>55,706.00</td>
<td>5,402</td>
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<td>1962</td>
<td>54,588</td>
<td>243,252</td>
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<td>76,423.20</td>
<td>7,298</td>
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<td>1961</td>
<td>67,696</td>
<td>297,284</td>
<td>500</td>
<td>40,839.65</td>
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<td>8,919</td>
<td>356,760</td>
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<tr>
<td>1960</td>
<td>89,935</td>
<td>386,240</td>
<td>500</td>
<td>54,247.55</td>
<td>125,909.00</td>
<td>11,587</td>
<td>463,480</td>
<td>80,692</td>
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<td>Totals</td>
<td>451,599</td>
<td>2,001,596</td>
<td></td>
<td>$239,467.41</td>
<td>$678,439.26</td>
<td>60,049</td>
<td>$2,401,960</td>
<td>$418,181</td>
</tr>
</tbody>
</table>

*Obtained by multiplying number of bales by the average of four trees per bale.

**Of the total permits issued each year approximately 53 percent are utilized and many of these involve only a few bales.

***No stumpage paid (to Tribe).
Table 3. Plantation Schedule—Block Operation

<table>
<thead>
<tr>
<th>Years in Production</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
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<th>11</th>
<th>12</th>
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<th>14</th>
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<th>16</th>
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<tr>
<td>BLOCK ONE</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<td>7</td>
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<td>BLOCK TWO</td>
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<td>BLOCK THREE</td>
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<td>BLOCK FOUR</td>
<td></td>
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<tr>
<td>BLOCK EIGHT</td>
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</tr>
</tbody>
</table>

(Complete rotation cycle for Block I—period of building work load.)

(Completed rotation cycles for Blocks II through VIII—period of stable work load.)
LITERATURE CITED


10. Table 1. Compiled from Bureau of Indian Affairs Records, Christmas Tree Harvests, Flathead Reservation, 1936-1968.


   Wright v. Best., 19 Colo., 2nd 368, 121 p. 2nd 702 (1942).


24. The important Federal--State--Indian relationship was established upon the facts of the Winters Decision. It is not the purpose at this time to review in detail these facts--they are reviewed in detail in the opinions of the Court of Appeals of the 9th Circuit Court which were affirmed by the Supreme Court of the U.S.
   Winters v. U.S., 143 Fed. 740, 741 (CA 9, 1906); and


   Appelles' Cert. denied 352 U.S. 988 (1956), 330 Fed. 2nd 897 (1965),
   Other numerous decisions not cited herein.
30. 43 U.S.C. 666, enacted July 10, 1952, is the basis of the Colorado action—it provides for—Suits for Adjudication of Water Rights, (a) Joinder of United States as defendant; under this statute, the United States, when a party to any such suit, shall (1) be deemed to have waived any right to plead that state laws are inapplicable or that the United States is not amenable thereto by reason of its sovereignty, and (2) shall be subject to the judgments, orders and decrees of the court having jurisdiction,.... What basically is of concern to the many Indian tribes is that the decision of the Supreme Court affirmed a state's right to adjudicate the Federal right (including the Indian under Federal definition) to the use of water of a river system. What, in effect, it held was that the United States has no water right in Colorado except those arising under state law. (Extremely detrimental to the Indian's rights if true.)


33. U.S. v. District Court, Ibid.

34. U.S. v. District Court, Ibid.


36. 25 C.F.R. 1.194


47. Director, Soil Conservation Service, Kalispell, Montana (personal communication).

48. Director, Soil Conservation Service, Polson, Montana (personal communication).


53. McCormack. Ibid.


59. Schmidt. Ibid., p. 5.
63. Hoffert Tree Company, Big Fork, Montana (personal communication).
66. Flathead Tribal Council Motion, Tribal Minutes, June 8, 1971. Request to undertake proposal.
71. Montana Constitutional Convention (1971-1972), proposed constitution, Article IX, Section 3.
73. 25 C.F.R. 1.194
76. Stevens v. Commissioner of Internal Revenue. No's. 26, 193 and 26, 281 (Nov. 26, 1971). On appeal from a decision of the Tax Court of the United States, U.S. CA (9th Circ.).


APPENDIX
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
Branch of Forestry

TIMBER CUTTING PERMIT FOR USE BY ORGANIZED TRIBES

Indian X
Non-Indian

Flathead Indian Reservation

Permission is hereby granted to ____________________________ whose address is __________________________________; to cut and remove in accordance with the regulations attached, on or before __________________, from the following tribal lands: no cutting permitted on allotted lands ________________ timber of kind, quantity, and price as follows: Douglas-fir Christmas trees

FREE USE PERMIT

Stumpage payments under this permit shall be: NONE

The attached pages, "Christmas Tree Regulations 19___ Season" and attached map are binding to this permit. The back portion of the attached regulations must be completed and returned by January 5, 19___, as a condition to receive future permits.

The permittee agrees to execute a power of attorney with the Superintendent pledging a performance bond in the amount of one hundred dollars ($100.00) and further agrees that any violation of the permit and Christmas Tree Regulations will result in immediate suspension of the permit and deduction of the full bond from per capita payments if cause cannot be shown within ten days as to why the bond and permit privileges should not be forfeited. This is in addition to any penalties that may be received in Tribal Court.

This permit is issued in accordance with the corporate charter of the _____________.

Confederated Salish and Kootenai Tribes.

Tribal Resolution No. __________________________
Chairman

I accept this permit and understand and agree to comply with the foregoing conditions and attached regulations.

___________________________
Permittee

Approved:

___________________________
Approving Officer
CHRISTMAS TREE REGULATIONS 19 SEASON

Christmas trees can be harvested by axes and pruning saws not to exceed 18 inches in length. The use of any other saws for cutting Christmas trees is strictly forbidden.

- No tree over 4 inches in diameter at breast height may be cut for a Christmas tree.
- The rail must be completely severed from the stump.
- The hauling of Christmas trees is limited to members of the Tribes and their immediate families. For these regulations immediate family is defined as spouse and minor children of the permittee.
- No permittee shall be allowed to hire Christmas tree cutters, except that minor children and spouse of the permittee are permitted to cut under this permit.
- It is a violation of these regulations for a member of the Tribes to be in Christmas tree cutting areas with non-members, except those of his immediate family.
- Non-tribal members married to and supporting members of the Tribes may harvest Christmas trees under their spouse's permit.
- Permits for cutting on allotments will be issued to allottees on request and to others on receipt of written permission from all of the allotment owners.
- Trees cut in violation of these regulations will be seized in compliance with I.A.M. Volume 5, Part III, Chapter 2, Section 214.
- This permit must be with the cutter at all times and must be shown to the buyer of Christmas trees each time trees are delivered to the yard.
- The holder of a Christmas tree permit who violates any of the regulations shall be liable under Section 42, Chapter 5, Law and Order Code of the Confederated Salish and Kootenai Tribes and Section 94-3308, Revised Code of Montana, 1962.
- No trees will be cut in areas exempted from cutting by the Branch of Forestry. A map depicting those areas closed to Christmas tree harvesting is attached and is part and parcel to the Christmas Tree Regulations. It is the responsibility of all permittees to understand which areas have been excluded from cutting of Christmas trees before signing the permit.
- Minimum rates for trees sold to buyers operating yards on the Reservation is $2.25 per bale.
- Each permittee must execute a power of attorney with the Superintendent pledging a performance bond in the amount of one hundred dollars ($100.00). Any violation of the permit and Christmas tree regulations will result in immediate suspension of the permit and deduction of the full bond from per capita payments if cause cannot be shown within ten days as to why the bond and permit privileges should not be forfeited. All of this is in addition to the penalties meted out in Tribal Court.
The following certification and selling data must be submitted to the Agency office at Ronan by January 5, 19__. Failure to submit this data will result in no future permits being issued to the permittee involved.

I hereby certify that the following Christmas trees were cut and sold from Indian lands.

<table>
<thead>
<tr>
<th>Name of Buyer</th>
<th>Number of Bales</th>
<th>Price Per Bale</th>
<th>Total Received</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>(3)</td>
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<td></td>
</tr>
<tr>
<td>(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(5)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Cutter name________________________ is hereby authorized to cut trees on land owned by____________________ in Section______, Township____, Range____West, M. P. M., until date____Dec. 17, 1971____under the following restrictions:

1. No trees having a diameter in excess of 4 inches at a point 12 inches above the ground shall be cut.

2. The total number of two to three foot trees cut shall not exceed 30% of the trees of all sizes cut.

3. No tree shall be cut which will be long-butted more than 80% of its height.

4. No tree shall be cut which will have a net length in excess of 10 feet.

5. No tree shall be cut which has a total height in excess of 14 feet unless special permission is given in writing by Burlington Northern's forester.

6. No tree shall be cut unless there is left growing at least one thrifty tree of comparable size, other than lodgepole pine, alpine fir, white fir or cedar, within a radius of 8 feet in each of four different directions - easterly, southerly, westerly, and northerly.

7. All trees cut shall be completely severed from the stump at a point no higher than 12 inches above the ground. All living branches shall be severed from the stump. Branches shall be scattered, and all long-butts shall be trimmed of all live branches and the branches also scattered so that the long-butt will lie flat on the ground.

This permit must be carried by the cutter at all times while he is engaged in tree harvesting operations.

This permit is for one individual only and is not assignable.

This permit does not authorize associates to work with the cutter named.

I have read and understood these cutting regulations.________________________

Cutter's Signature

This permit issued by________________________

Tree Company Official's Signature and Title