



Michigan Department of Natural Resources

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FOREST CULTIVATION FIELD OPERATIONS DIRECTION

Forest Resources Division

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INTENT (BROAD ROLES)

Forest Resources Division (FRD) is investing significant resources (money and staff) to perform reforestation activities on state forest land. Forest cultivation is an FRD priority and will involve both the fire and forestry sections of the FRD. In general, an annual cultivation Plan of Work (cultivation POW) is developed under the direction of the District Forest Manager (DFM) and is then resourced by the Forest Management Unit (FMU), District, and/or Resource Protection Manager (RPM). Equipment is scheduled to meet the cultivation POW in coordination with the FMU, District, and Incident Command Center (ICC). Resourcing is a shared responsibility that requires communication at multiple levels (see Resourcing)

As the herbicide acreage continues to grow, FRD will adapt to meet these needs for the program. Trenching generally follows the schedule well. However, the spray program has more logistical issues to overcome. Therefore, input from the DM and Timber Management Specialist (TMS) will often be required until staffing catches up with need for these treatments.

Resources for the cultivation POW include FMU staff, contractors and regional equipment operators. Transitions in the Kirtland's Warbler (KW) program and the growth of cultivation work under Good Neighbor Authority (GNA) have resulted in an increase in contract acreage. The TMSs will have primary responsibility for contract oversight. The FMUs assist by providing information about the status on contracted sites in their work area.

THE CULTIVATION PLAN OF WORK AND THE SEEDLING ORDER

The cultivation POW will mirror that of the timber sale POW on a fiscal year basis. The majority of updates that contribute to a POW occur between July and September (see Calendar of Major Deadlines) of each year so that staff have the opportunity to assess sites in the field and schedule appropriate treatments. As is the case with the timber program, each fall is the time to wrap up work that we were unable to complete during the previous year, or to get a head start on the current year's workload. The POW is not finalized until a few months into the fiscal year, but cultivation work can begin on approved treatments before the cultivation POW is fully resourced.

Artificial regeneration is the main driver in the cultivation program. Therefore, the timelines in the cultivation POW are built around the deadline for the annual seedling order. Greenhouse space is allocated by the end of October, and it takes a year to grow the seedlings. Therefore, updates to planting treatments that occur in the fall and over the winter would not appear on the cultivation POW that is finalized in December. Planting acreage is only summarized for the coming planting season and the seedling order for planting in the year to follow. For instance, if a timber sale is completed in November of 2019 (FY 2020), the planting treatment would appear on the 2021 POW and planting would be scheduled for spring of 2022. This planting treatment would not appear on the 2020 POW that is finalized in December of 2019. In summary, each stand examiner needs to understand that the seedling order for first plants is essentially finalized at the end of October, and they therefore need to schedule planting treatments accordingly if this overlap occurs. This should be a rare circumstance if sites are being assessed between July and September.

Replants are added to the final seedling order in December of each year. This flexibility is included in the program guidance because additional time is often necessary to complete regeneration surveys and the number of seedlings for replants only averages 4-10% of the overall seedling needs. The fall season also provides operational efficiencies for completing surveys. Replants would not occur in spring following the regeneration survey if a release spray is scheduled as the next step. Release spraying in the year prior to replanting aligns well with the time it takes to grow the seedlings. If a release spray is not necessary, each District has the option to prioritize replants and re-allocate their seedling order during the winter prior to each planting season.

Manual updates to the POW can be made after it is finalized in December. A corresponding MiFI update must be completed when this occurs. Examples include prioritizing a replant, scarification of a timber sale that occurred over the winter or finding a convenient opportunity to trench a nearby site. Although, adding trenching sites should be a rare occurrence. The tendency to chase timber sales inflates the number of

additions/deletions on the POW and equipment schedule. This can create a need for timber sale contract amendments and cause issues with workload planning. These issues can be mitigated if sites are assessed in the July to September window and scheduled accordingly at that time.

MiFI

The Michigan Forest Inventory (MiFI) treatments database will be used for tracking all trenching, scarification, site prep or release herbicide application, and planting cultivation work, including treatment sequencing, and completion of individual steps. The cultivation POW is derived directly from MiFI and organized according to the type of treatment. Stand examiners are responsible for entering all treatments, including next steps, but the dates of those steps are not required until the timber sale is completed and documented in the Timber Sale Completion Report (TCR).

As treatments become available to be scheduled, dates are entered for next steps and “on pow” will be included in the probability column enabling these activities to appear on the cultivation POW. The POW is based on a fiscal year approach, but treatments can be scheduled using any date within the corresponding fiscal year. The use of an October 1 start date can add confusion when scheduling multiple next steps across a few years. Therefore, the recommendation is to use the first date of the month in an approximate time of the year when the work is likely to occur. This approach is more intuitive, especially when a projection of growing seasons is needed to schedule it correctly. These dates are not used to schedule the work. They are estimates that provide a better visualization to the examiner

It is essential that the boundary of a planting treatment is updated based on site prep completion. The planting treatment boundary should mirror the treatment history for site preparation. The planting treatments are utilized to complete the seedling and planting orders because trenching is not always utilized. There are various ways to trigger a boundary update (see Completion Tracking and GPS). Due to certification requirements, the date for the Timber Sale Completion Record (TCR) should be entered in the planting treatment comments.

The cultivation program will track the status of work at the stand level. Lumping different stands into one treatment will create problems when different steps are taken to achieve the cover type objective. Multi-part treatments are appropriate to exclude roads and other fragmenting features within a stand. However, multi-part treatments should not be utilized to group stands.

Treatment sponsor is utilized to filter work that does not involve cultivation. For instance, if hardwood saplings are scheduled to be planted, then a Wildlife Division (WLD) sponsor should be coded. At this point, there is not any easy way to filter spraying treatments being accomplished by CISMA's or other organizations, but treatments still need to be approved and entered. Therefore, it is recommended that a WLD sponsor be coded for any spraying treatments that are not related to cultivation.

The FRD is now responsible for implementing the reforestation program for KW habitat. The KW planting and KW replanting have now been added as planting treatment methods. The treatment sponsor for KW plantings will now be the stand examiner from FRD that is entering each treatment.

REGENERATION SURVEYS

Prior to planting, regeneration surveys should be scheduled following the 1st and 3rd growing season. The regeneration survey that follows the 1st growing season should be scheduled within the same fiscal year as planting. This is necessary because these surveys need to be resourced in advance and the POW is finalized in December. The Forest Regeneration Survey Manual (IC 4145) recommends the earliest field work be completed in July for 3rd growing season surveys and September for 1st growing season surveys.

Management decisions and database management fall under the purview of the FMU. Therefore, if regeneration surveys are contracted, the FMU is still responsible to interpreting the data and coding necessary treatments. The TMS is responsible for quality control and overall contract administration.

COMPLETION TRACKING AND GPS

The business process for cultivation completions will involve an email from the operator to the person responsible for updating MiFI, with a copy to both supervisors, and the TMS. The completion email should include a shapefile or instruction to where the data can be retrieved. Use of collector and/or other shared space is encouraged for sharing data, but an email still needs to be sent confirming completion. Site prep contractors will provide the shapefile to the TMS who is responsible for forwarding to the appropriate staff doing updates. GPS data is required to be collected for every treatment except for roller chopping when it is followed by trenching. If trenching is not included in the site plan then GPS data for roller chopping is necessary to collect. GPS data for any site prep step needs to exclude any areas that were not treated (roads, wetlands, retention, etc.). A linear shapefile is often preferred, which will exclude areas not treated by default rather than needing to modify a polygon to exclude features. Shapefiles can be included in each email along with comments that would be captured in treatment history. A MISSDIG number should also be included in the email if soil was disturbed. A separate email can be sent for each individual treatment or as a batch of the same treatment method. Completion emails will be sent within 2 weeks of a site being finished. The MIFI update should be completed in 1 week of receiving the email. This timeframe can be shortened as staff become more familiar with collector.

RESOURCING AND THE EQUIPMENT SCHEDULE

Each District is responsible for a subset of cultivation equipment that is shared amongst FMUs. Districts coordinate with Units to select and schedule sites for internal and contract work. Contracting allocations are tracked with the cultivation budget. Districts utilize those allocations when selecting sites for contract site preparation. The resourcing details are then entered into the equipment schedule by whomever is delegated to do so by the DFM. This schedule communicates the piece of equipment and week that the work is planned to occur for each treatment. Options are also available to identify operators and trainees. Treatments assigned to contractors will also be included. The equipment schedule is located on the Silviculture sharepoint at: <https://stateofmichigan.sharepoint.com/teams/insidednr/forest-resources/forest-planning/Pages/Silviculture.aspx>.

Non-operational time must be kept to a minimum. If an operator becomes unavailable, another one will be assigned. The DFM has the authority to shift cultivation resources within the District.

Communication with the RPM is necessary to utilize Regional Equipment Operators. Filling holes is a shared responsibility that requires communication at multiple levels.

EQUIPMENT MAINTENANCE

Equipment maintenance standards, inspections, request for repairs and general consultation on forest cultivation equipment will occur in the same manner as for fire equipment, including daily completion of the equipment log by the operator. This involves the RPMs, duty officers, repair shops, mechanics and operators. Cultivation equipment is often shared between FMUs. Therefore, a preventative maintenance inspection (PMI) is completed during the transition between FMUs. The PMI form is emailed to both Supervisors with a copy to the ICC and filed at each FMU.

CALENDAR OF MAJOR CULTIVATION DEADLINES

DUE DATE	ACTIVITY
October	<ul style="list-style-type: none"> • Districts review the list of planting and corresponding site preparation treatments. Districts communicate with FMUs to reconcile any differences. • FMUs update MiFI treatments before the end of October to reflect final decisions on sites that will be planted for the first time. • Seedling needs are calculated based on acreage of planting treatments. • Seedling volume for first plants is calculated from planting treatment on the POW • Most artificial regeneration surveys are completed.
November	<ul style="list-style-type: none"> • All regeneration survey analysis is completed and coded by FMUs • TMSs review FMU decisions from regeneration surveys in MiFI. Concerns are reconciled between Districts and FMUs. • Next steps from regeneration surveys are finalized. FMUs update the final decision in MiFI by the end of November.
December	<ul style="list-style-type: none"> • The non-commercial treatment list is downloaded from MiFI and the statewide cultivation POW is finalized and sent to each Region, District, and FMU. • Supplemental seedling volumes are calculated from replant treatments on the POW and the seedling order is finalized • The cultivation budget is finalized to correspond and/or live within the FRD budget line for cultivation.
January	<ul style="list-style-type: none"> • Districts and FMUs consolidate resourcing plans and begin populating the equipment schedule. • Additional attributes for spring planting treatments are finalized by each TMS before the end of January.
February	<ul style="list-style-type: none"> • Data for planting labor is compiled and the purchase orders for planting are finalized for the seedlings that were ordered the previous year. • Districts communicate shared equipment needs and complete a final draft of the equipment schedule.
March	<ul style="list-style-type: none"> • The Assistant Chief reviews and approves the cultivation POW, resourcing plan, and equipment schedule. • Purchase orders for site preparation contracting are completed through each District
Remainder of year	<ul style="list-style-type: none"> • Each District updates the equipment schedule upon treatment completion and maintains the schedule to represent the current planned timeline for completion.
July	<ul style="list-style-type: none"> • The first statewide non-commercial POW is ran for the following fiscal year. • The Silviculturist provides forest cultivation budget request for next fiscal year.
July-Sept.	<ul style="list-style-type: none"> • Site visits are conducted, as needed, to assess competition, slash, and collect information for pesticide use or burn prescriptions. FMUs enter next step dates in MiFI to schedule treatments for the following fiscal year(s).
September	<ul style="list-style-type: none"> • Prescribed burn lists from each District are provided to the fire section in Lansing prior to October 1st.

ROLES AND RESPONSIBILITIES

WHO	DOES WHAT
Assistant Chief	<ul style="list-style-type: none"> • Review and approve a finalized resourcing plan and equipment schedule by March 1. • Approve the finalized plan of work in December and equipment schedule in March. • Review and approve major equipment purchases and repairs. • Make decisions if cultivation equipment sharing cannot be resolved by DFMs. • Implement program improvements and changes in procedures. • Make decisions regarding overtime.
State Silviculturist	<ul style="list-style-type: none"> • Track and monitor the overall forest cultivation budget and monitor correlation with cultivation POW. • Monitor and report program accomplishments. • Submit budget requests. • Coordinate development of RFPs and contracts. Compile purchase orders for seedling procurement, planting labor, and planting oversight. • Manage Tree Improvement Center. • Make initial budget requests based on previous cultivation budgets. Refine and finalize the cultivation budget. • Compile final treatment list for the cultivation POW and equipment schedule. • Coordinate silviculture research and communication with other states. • Coordinate compilation of silviculture guidance.
DFM	<ul style="list-style-type: none"> • Assign staff to conduct quality control so that all information is current in MiFI in accordance with deadlines at the ends of September, October, and November. • Assign staff to review modifications to resourcing plans including the addition or deletion of treatments from the POW. • Ensure district TMS conducts quality control and provides feedback as the POW is developed between July and December • Support implementation of appropriate timber sale specs and related sale administration (with TMS review and guidance). • Implement the annual cultivation POW and monitor progress. • Annually ensure the district FRD prescribed burn list is submitted by Oct 1. • Ensure district equipment is maintained; inspection reports are completed, and request for repairs prepared and submitted. Address equipment issues reported by RPM. • Accomplish annual regeneration surveys and associated MiFI updates by the end of November.

WHO	DOES WHAT
Unit Managers and/or Forest Fire Supervisors	<ul style="list-style-type: none"> • Delegate authority to determine next steps for cultivation decisions to appropriate FMU staff. • Ensure implementation of the non-contractual FMU portion of the forest cultivation program on their unit, excluding work performed by the district/regional equipment operator. • Ensure completion of work assigned to their unit during the assigned time and coordinate the movement of cultivation equipment between sites and FMUs as necessary. • Designate an operator(s) for cultivation equipment scheduled for FMU operation. If an operator is unavailable, notify the DFM so an additional operator can be assigned. • Assign staff to accomplish annual regeneration surveys and complete the necessary MiFI updates by the end of November. • Assign staff to complete Pesticide Application Plans (PAPs) and Pesticide Use Evaluation Reports (PUERs) for pesticide treatments that will be conducted by Unit staff or partner organizations. • Identify FMU staff to conduct site visits as necessary prior to creation of the cultivation POW. These staff are also responsible to update next steps in MiFI and consult the TMS when necessary for advice. • Ensure completion of timely inventory updates (treatment closure, stand update and promote next cultivation treatment) within 2 weeks of the Timber Sale Completion Report (TCR) date or the previous cultivation treatment. • Ensure completion of routine maintenance of equipment operated by Unit staff. Ensure Preventive Maintenance Inspection (PMI) forms are completed and distributed the same as fire equipment. In addition, ensure PMI forms are completed when equipment is moved between FMUs. Ensure the date of the PMI is entered into the equipment logbook. • Ensure effective timber sale contract administration.
Timber Mgt Specialist	<ul style="list-style-type: none"> • Provide quality control, training, and advice for cultivation related prescriptions. Monitor treatment data between July and December and provide feedback to increase quality of the POW. Report any concerns with FMU decisions to DFM. • Monitor POW progress and periodically update their supervisor. Communicate gaps or errors in MiFI updates to DFM • Review PAPs and PUERs associated with spraying being done by Unit staff or by CISMAs. Complete the remaining PAPs and PUERs needed for the District. • Assist the DFM and FMU with resourcing and completion of the cultivation equipment schedule. • Review timber sale prescriptions for identification of cultivation program work. • Coordinate creation of purchase orders and invoice payments for site preparation, spraying, and chemicals. Inform State Silviculturist when any payment is being made. • Conduct quality control and provide feedback for data this is generated for planting summaries and pesticide use summaries. • Communicate contract completion information for MIFI updates • Identify problem areas regarding timber sale specifications or timber sale administration and inform Unit Managers and/or DFM.

WHO	DOES WHAT
Resource Protection Manager	<ul style="list-style-type: none"> • Apply the Preventive Maintenance Inspection (PMI) and Request for Repair process currently used for the fire equipment to the forest cultivation equipment, including the ICC equipment inspection process. Send copies of all PMIs and Request for Repairs to EUP DFM. • Report shortcomings in equipment maintenance or equipment operation to the DFM. • Oversee repair shop responsibility for auditing books, ordering repair parts, making repairs to cultivation equipment, and reviewing preventive maintenance records. • Support FMUs in fire officer scheduling/assignments to keep forest cultivation equipment operating. • Schedule Regional equipment operators to assist in equipment movement and/or operation as needed. • Assist DFMs and UMs in selection and training of operators for forest cultivation equipment. • Maintain an inventory spreadsheet for Regional cultivation equipment
Unit staff	<ul style="list-style-type: none"> • Operate and transport assigned forest cultivation equipment as fire danger permits and as assigned by FMU management. • Inspect, maintain, decontaminate, and request repairs for assigned cultivation equipment as noted below for equipment operators. • Conduct site preparation assessments, regeneration surveys, and complete updates to next steps in MiFI as assigned.
District Equipment Operator / Regional Equipment Operators	<ul style="list-style-type: none"> • Operate and transport forest cultivation equipment as assigned by supervisor. • Inspect, maintain, decontaminate, and request repairs for assigned cultivation equipment, using the same forms, timelines and process as fire equipment. • Decontaminate assigned equipment per FRD guidelines, at a site accessible by semi and before arranging for transport. • Conduct PMI and complete PMI forms at a minimum of 3 times per year. Ensure that the date of each PMI is recorded in the equipment logbook. • Assist in training of selected Fire Officers for cultivation equipment operation. • Follow the same procedures as Unit staff for communicating cultivation completion data