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Introduction:
1. There should be an incentive for small forest landowners to burn their slash to biochar, rather than to ash. This should be extended to vineyards, and other agricultural endeavors, that have significant woody material to be burned (scotch broom, Himalayan blackberry, thistle, etc).
2. Biochar results in carbon capture, as opposed to burning to ash (which results in release of all of the carbon to the atmosphere, as CO2, CO and volatiles, as well as smoke pollution).
3. Open pile burning of slash to ash will likely occur unless there are incentives to small forest owners (and others) to burn to biochar; and open pile burning to ash is not good for the environment. the incentive can come from the purchase of carbon credits/offsets by carbon producers.

Current Practice:
In the vast majority of cases, the reduction of slash piles occurs via pile burning, which burns the organic matter to ash. This is harmful to the soil, as the high temperatures result in soil sterilization.

Background:
1. Biochar production via a flame-cap kiln reduces the volume of CO2, CO, methane, volatiles and smoke released to the atmosphere, as compared to burning slash to ash.
2. If carbon producers (petroleum refineries, cement manufacturers, utilities utilizing natural gas for electricity production, etc), who purchase carbon credits/offsets from the state, were able to provide some of that carbon credit money to small forest landowners as an incentive to produce biochar.
3. A large portion of the Washington Dept. of Natural Resources (DNR) budget is for fire suppression and fire prevention. The DNR has declared fire risks in our forests is a significant problem, and many efforts have been undertaken by the state to reduce that risk.
4. Incentivizing small forest landowners to convert slash to biochar would reduce slash on the forest floor, and thus decrease ladder fuels, and 'hot' forest fires.
5. There is a general lack of knowledge about biochar production, biochar ecosystem services and field methods among the Dept. of Ecology, the Dept. of Natural Resources, the USDA/NRCS, small forest landowners, and the general public.

Benefits of Biochar Production:
1. reduction of ladder fuels (removal of branches from the tree trunk below 10-12ft, which results in the next benefit;
2. reduction of 'hot' forest fires;
3. decreasing CO2, CO, methane and smoke contaminants released to the atmosphere;
4. carbon sequestration - the carbon obtained with biochar production is sequestered for 1,000 to 10,000 years;
5. amending the soil with organic carbon;
6. reversing the pH of acidic soils;
7. improves soil organic matter with recalcitrant soil carbon;
8. retaining soil moisture (biochar is porous) to benefit plants during our hot summers;
9. decreases bulk density of soil and mitigated soil compaction;
10. decreasing particulate matter, smoke and volatiles released to the atmosphere (as opposed to the 'pile burn' method which produces ash - ash is mineral carbon);
11. a method of destruction of scotch broom, himalayan blackberry, and other invasive weeds, during forest/riparian mitigation;
12. when slash piles are burned to ash, the hot temperatures create hydrophobic soils that don't retain water, leading to the hazards of significant run-off, landslides and pollutants getting into our streams (https://foreststewardshipnotes.wordpress.com/2022/02/10/biochar-how-to-turn-your-brush-piles-into-a-beneficial-product/);
13. when slash piles are burned to ash, the hot temperatures sterilize the soil and kill beneficial bacteria and fungi, which are needed for regeneration of trees and shrubs. weeds (like scotch broom, Himalayan blackberry, thistle, etc.) thrive in this sterilized soil;
14. biochar is used as filters in retention ponds and factory/roadway water run-off, to absorb toxic organic and inorganic chemical pollutants before they reach the streams and rivers;
15. selling bagged (1-3 cu ft) biochar for use as a soil amendment or mulch: this would qualify as a specialized forest product, and benefit the economy;
16. other.

In Summary:
1. There should be incentives for small forest owners to improve their forests by decreasing fire risks, increasing carbon capture and decreasing the harms to the soils that occurs with the burning of slash piles to ash.
2. WAC 173.446 should:
a. acknowledge the benefits of burning slash to biochar;
b. establish an incentive for the burning of slash to biochar;
c. allow the availability of burning slash to biochar as a carbon offset credit;
d. assist with the linkage of carbon producers (petroleum refineries, cement producers, electricity producers, open field burners, etc.) with carbon sequesterers (biochar producers), to facilitate a, b, and c above;
e. instruct the Washington State Dept. of Ecology to facilitate the above measures.