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### **Preplant Burndown Herbicides**

Burndown herbicides are used to kill emerged weeds prior to planting lettuce. Some of the species we have are very hard to kill. Therefore, these weeds would have to be controlled using selective herbicides after the crop has emerged.

Some of the products we have available are glyphosate (Roundup), paraquat (Gramoxone), oxyfluorfen (GoalTender), carfentrazone (Aim, Shark), Pyraflufen (ET), and pelargonic acid (Scythe). There are other products that are being developed such as the S3100 from Valent USA.

Herbicides that can be used up to just before crop emergence are Roundup, Paraquat and Scythe, these provide no residual weed control. ET has an interval of 1 day following preplant burndown application for leafy vegetables. AIM herbicide also requires for some crops (tobacco) 1 day following preplant burndown<sup>1</sup>. Oxyfluorfen does not bind strongly to soil but stays active for a long time and requires ninety days after application for the low rate and 120 days for the high rate prior to planting lettuce<sup>4</sup>. It forms a layer on the soil surface that weeds contact as they emerge. If this barrier is destroyed by machinery traffic weeds will not be controlled.

Roundup is a systemic and with a Koc (sorption coefficient) factor of 24,000 adheres very strongly to the soil. So, it is active only on growing plants, but once its bind to the soil is inactive.

Paraquat also adheres good to the soil with a Koc of 1,000,000, so coverage is important for best weed control.

There is a project through the IR-4 program to add the use of glufosinate as a Pre-Plant burndown on spinach, lettuce, broccoli, cabbage, and mustard greens. Hopefully this addition to the label will provide a new tool for our growers in Arizona and other States<sup>3</sup>.

1. <https://www.cdms.net/ldat/ld5L1003.pdf>
2. [https://cales.arizona.edu/crops/vegetables/advisories/docs/herbicide\\_injury.pdf](https://cales.arizona.edu/crops/vegetables/advisories/docs/herbicide_injury.pdf)
3. <https://www.ir4project.org/>
4. <https://ag.arizona.edu/crops/vegetables/advisories/more/weed140.html>