



**June 2010**

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## Heat Units for 2010

Looking at the table below gives a good estimate of how 2010 compares to the past five years. To estimate the rest of the 2010 year I used averages from the previous five years to see how the cool start affected the whole year. Using this method means 2010 may be cooler than the past five years. Heat units for April was 82% of average and May was 62% of average. The first week in June was cool so June may be cooler than average.

## Ontario Growing Degree Day Units (base 50°F from Agrimet Data)

Year	March	April	May	June	July	August	Sept.	Oct.	Nov.	GDD from April-Oct.	Growing Season
2005	125.6	193.2	341.8	446.2	692.2	684.9	434.5	214.7	5.9	3007.5	95%
2006	48.4	203.5	406.4	597.3	790.9	647.3	446.4	219.0	60.1	3310.8	105%
2007	182.6	219.5	440.6	543.1	796.3	644.3	441.9	184.1	49.6	3269.8	103%
2008	38.8	144.3	389.4	512.3	712.7	665.0	452.1	227.9	35.7	3103.7	98%
2009	65.7	209.0	414.6	509.2	701.5	644.3	523.0	129.9	33.9	3131.5	99%
Average	92.2	193.9	398.6	521.6	738.7	657.2	459.6	195.1	37.0	3164.7	100%
2010	91.9	159.2	<b>248.0</b>	521.6	738.7	657.2	459.6	195.1	37.0	2979.4	94%

Note: To estimate the rest of the 2010 year I used averages from the previous five years.

For More Information:

Contact Steve Norberg, Field Crops and Watershed Management  
Phone: 541-881-1417

# Making Hay Faster

Moisture content of growing alfalfa is generally from 75 to 83 percent. Drying rate of hay is dependant upon environmental variables such as solar radiation, temperature, relative humidity, soil moisture and wind speed. Solar radiation has the greatest effect on drying. Removing water from alfalfa starts with a rapid drying phase and accounts for 75 percent of moisture removed and only takes 20 percent of the time. The greatest resistance to this loss is the boundary layer of moist air close to the plant. Wind can remove this barrier and greatly accelerate this phase. The second phase is the slow drying phase and begins when the stomates close in the plant due to lack of moisture. This slower phase is hindered by the waxy cuticle of the plant stem since that is the way the remaining moisture must exit the plant.

Mechanical conditioning is a widely accepted practice which occurs when the alfalfa hay is crushed between intermeshing rollers made of steel or rubber. This crimping is to facilitate drying of the stems and in theory, the more aggressive the crimping the more the benefit, however, leaf loss increases as the crimping gets more aggressive. Mechanical crimping hastens drying by as much as 30 percent. Conditioners should be set so the stems are cracked and crushed, but not cut or shredded. Consult your owners manual for proper conditioner adjustment.

Maceration is still experimental and refers to the severe mechanical conditioning at the time of cutting and the process splits and shreds stems and abrades the waxy cuticle coating on the plants. Stems are actually broken into numerous pieces while leaves are crushed and pureed. Alfalfa is then pressed into a cohesive mat that remains intact on top of the stubble. In this system curing time has been reduced to as little as five hours under favorable curing conditions. In addition to speeding the drying, maceration has been shown to increase digestibility by 10 percent. There are different degrees of maceration and all benefits may not be received if a low level of maceration occurs. Macerated hay is not as visually appealing due to the cut stems and off color compared to traditional hay. If severe macerated haying equipment was developed special baling equipment would be required other than traditional balers.

Interest in hay desiccants and preservatives has increased in hopes to reduce curing time of forages. First it is important to recognize that there are two modes of action. Hay desiccants which is applied to hay as it is curing, is used to increase the drying rate of forages. On the other hand, a preservative is applied to hay as it is being baled to allow baling of a wetter than normal hay with no spoilage during storage. Both require a spray system either on the mower (desiccants) or on the hay harvesting equipment (preservatives).

The desiccants that are effective contain potassium or sodium carbonate which breaks down the waxy cuticle of the stem so it will dry quicker. Desiccants only work well on legumes such as alfalfa. Desiccants only work well when drying conditions are good. Treated hay absorbs water faster than untreated hay so it would be important to get hay put up prior to a rain or it may make matters worse.

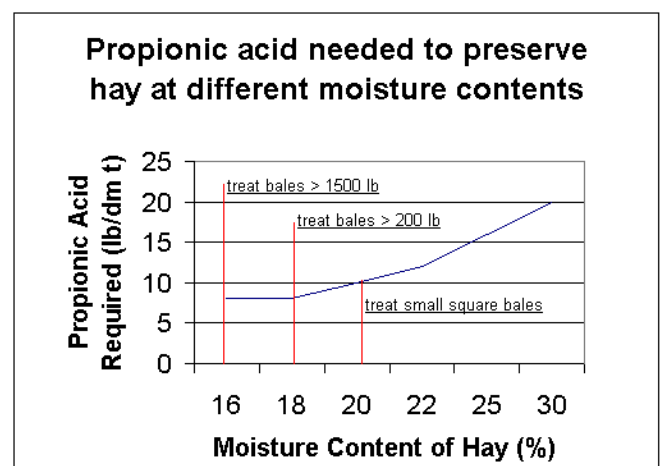
Preservatives are applied at harvest to prevent heating and spoilage. To be cost effective preservatives must prevent rain damage to hay and only work if applied uniformly to the windrow as it is entering the baler. The two compounds that are the most effective for alfalfa are propionic acid and acetic acid. Only half as much propionic acid has to be used as acetic acid. Use of ammonium propionate (buffered propionic acid) is preferred over propionic acid since it is less caustic which makes it easier to handle and easier on machinery. When considering price consider products based on the amount of propionic acid in the material. Other additives such as inoculants do little to preserve hay. Rates of propionic acid required varies with hay moisture content (see figure lower right). Remember if what you are using is only 50% propionic acid, then you will have to double lbs/ton applied. Use of preservatives when hay is over 35 percent is not recommended.

Increasing windrow width speeds drying but requires wider conditioners. Wide windrows usually dry one day quicker than narrow windrows. Since moisture content within the windrow is more uniform it will speed raking and baling. Wide windrows generally require raking prior to baling but where raking generally occurs this is not a problem. Swath width is limited by your equipment as you must be able to drive to rake and bale.

Rake hay at the correct time also speeds drying and reduces leaf loss which reduces quality and yield. Optimum moisture content for raking is between 35 and 40 percent moisture. Raking hay when it is too dry usually has higher losses than baling when it is too dry. Raking losses can be as high as 25%.

Source: Hay Desiccants and Presservatives by Dan Undersander:  
<http://www.uwex.edu/ces/forage/pubs/preserv.htm>

Irrigated Alfalfa Management for Mediterranean and Dessert Zones Chapter by by Steve B. Orloff and Shannon Mueller at  
<http://alfalfa.ucdavis.edu/IrrigatedAlfalfa/>



# **Strip Tillage, No tillage and Soybean Tour**

**June 17, 2010 from 9 AM - 5:30 PM,  
Bus & Lunch Provided**

**Tour will start from the Malheur SWCD Office,  
2925 SW 6th Ave. Ontario, OR 97914**

**RSVP for Lunch Required by noon June 16th  
by calling Malheur Ext. Office 541-881-1417**

## Schedule

- 9:00 AM Bus Leaves Malheur Soil and Water Conservation Office
- 10:00 AM Kenneth Jensen Strip Tillage Equipment near his new shop (Near Monte Heid's house)
- 10:25 AM Kenneth Jensen Strip Tillage Corn Field
- 10:40 AM Monte Heid Strip Tillage Dry Beans
- 11:40 AM Jerry Erstrom's Soybeans
- 12:10 AM Gary Westcott's No Tillage Spring Barley into Corn Residue
- 12:35 PM Gary Westcott's No-tillage Spring Barley into Wheat Residue
- 1:00 PM Lunch at SWCD Office courtesy of Malheur SWCD and ODA
- 2:15 PM Doug Stipe Furrow Irrigated No Tillage Spring Wheat into Fall Killed Alfalfa
- 3:10 PM Rob Wagstaff Strip Tillage Sugarbeets into Wheat Cover Crop after Potatoes
- 3:50 PM Kip Cindell's Furrow Irrigated Sugarbeets into Alfalfa
- 4:15 PM Ron Smith's Corn on Corn
- 5:20 PM Bus Arrives in Ontario
- 5:40 PM Bus Arrives in Vale (for producers leaving vehicles in Vale)



**Growing Treasure in the Valley**  
Malheur County Extension Service  
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Ontario, Oregon 97914

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## **Growing Treasure in the Valley**

*Malheur  
County  
Extension*



### **Reduced Tillage and Soybean Tour on June 17th.**

Don't miss an opportunity to see how your neighbors are reducing tillage costs, by fewer passes across the field. The no till drill has covered over 800 acres by 12 different producers and some of these acres are under furrow irrigation. Strip Tillage is growing and over 13 producers in the Treasure Valley conducted strip tillage this year mostly under sprinkler irrigation. See details inside.

Sincerely,

Steve Norberg

June 2010

Malheur County Extension Service

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**We are on the Web:**

**<http://extension.oregonstate.edu/malheur>**