



How to figure chemical rates using active ingredient (ai) terminology

Chemical rates are commonly expressed in product amounts per acre, for example ... “apply 2 pints per acre (2 pt/A).” When multiple formulations of one active ingredient exist there can be confusion between rates expressed in product amounts. Two pints per acre of a 3 lb. formulation would contain 0.75 lbs active ingredient (ai) while two pints of a 4 lb formulation contains 1.0 lb of ai. This potential for error is precisely the reason for addressing chemical rates using active ingredient . Every chemical label includes information about the amount of active ingredient per gallon of product. This is useful when multiple formulations of one active ingredient are available in the marketplace. For example, 2,4-D Amine 4 versus 2,4-D LV6. If you look closely at the label, directly under the percentages of the ingredients you will usually find this information. We can utilize this information to help us calculate equivalent product amounts regardless of the formulation in question. In order to express rates with “ai” terminology we divide the formulated lbs/gallon (we will use 4 for the 2,4-D Amine 4 example even though the stated lbs below are 3.8) by 8 (8 pints in a gallon) to get the lbs of active ingredient per pint of product. In this case $4/8=0.5$ lbs active ingredient per pint of product. This means that every pint of this product contains 0.5 lbs active ingredient. If our recommended rate is 1.0 lbs ai/acre we divide the 1.0 by the 0.5 (lbs ai/pint) and we get 2 pints. So 2 pints gives us 1.0 lbs ai/acre of a 4 lb/gallon product. If the product of choice was a 6 lb material like 2,4-D LV6 we divide 6/8 to get 0.75 lbs ai/pint of product. In order to figure the product rate for 1.0 lb ai/acre we divide the 1.0 by 0.75 and we get 1.33. That means we need 1.33 pints/acre of a 6 lb material to achieve the 1.0 lb ai/acre rate.

