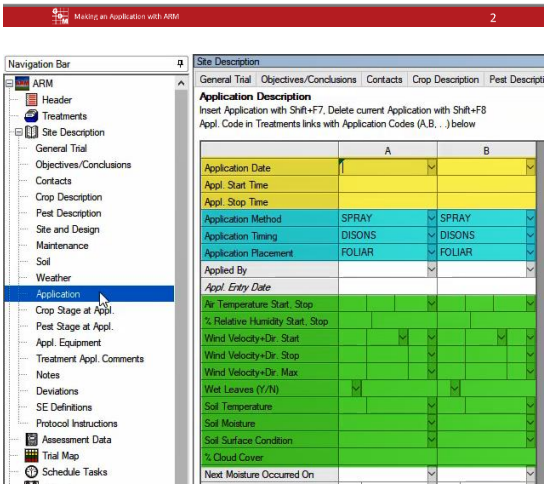
Making an Application with ARM

In this video...

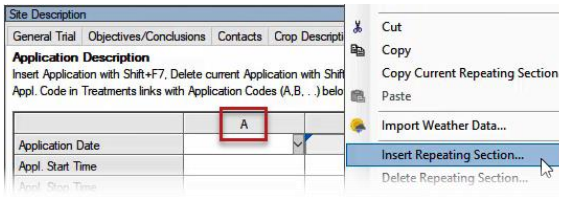
- Application details -> Site Description
  - Application Amount, Mix Size
- Mix Size Calculator
- Spray/Seeding Plan report

In this video, we discuss how to plan and document treatment applications in a trial. We will explore the Site Description tabs that are used to fill in application details, especially the Application Amount and Mix Size values. We will also use the Mix Size Calculator and the Spray/Seeding Plan report to calculate the exact amount of product to measure for each treatment application.

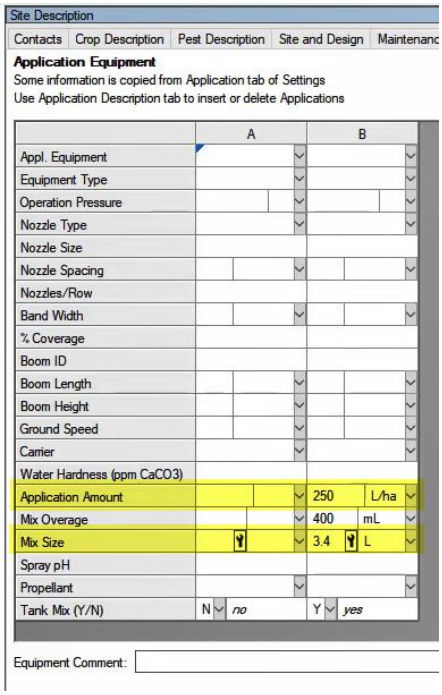


Let's begin by opening the tutorial trial 'MakeAnApplication'.

An application is documented within a Trial primarily on the Application and Application Equipment tabs of the Site Description. Enter the time, method, weather and soil details at the time the application is performed, on the Application tab.



Applications are denoted with letters instead of numbers, so here we can see the two applications planned for this study, A and B. Use the 'Insert Repeating Section' command to add an additional application to the study, if necessary.



The Application Equipment tab is used to fill in details about the equipment used to make the application. This includes the Application Amount and Mix Size, used in calculating chemical product amounts to measure for the application.

The Application Amount (previously called the Spray Volume) is the amount or volume *per unit area* to use when applying treatments. In our example, we dilute treatments in water before application, so the Application Amount is the amount of water plus formulated product that is applied to our experimental units on a per-area basis.

The mix size is the amount of mix (diluent + formulated product) that is to be prepared in a single "batch" while making the application to all experimental units of the treatment component.

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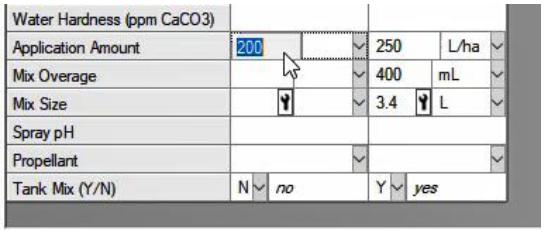
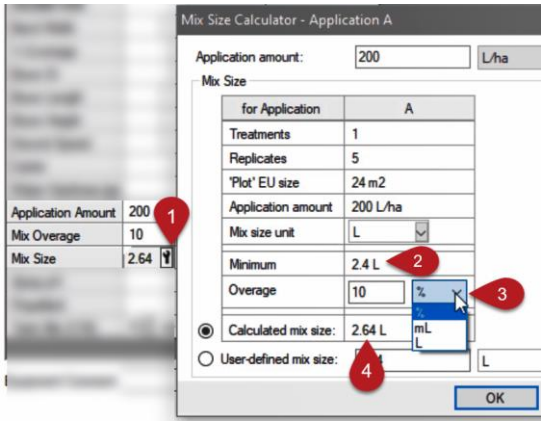
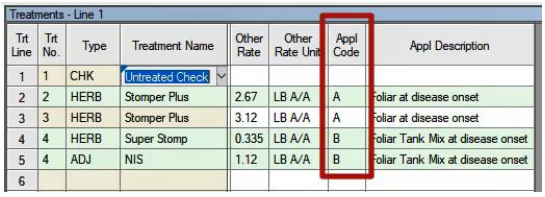


If these fields are left empty, ARM uses the values in Settings. However, it is recommended to always fill the information in the Site Description. In fact, just clicking into a field auto-fills the values from Settings!

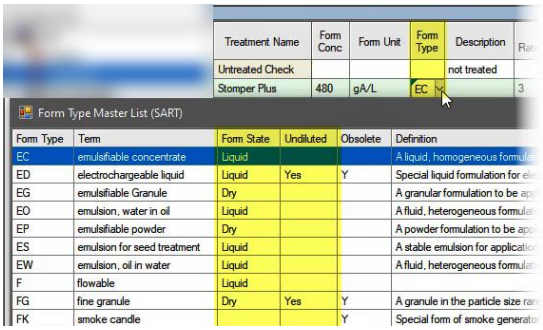


1. Access the Mix Size Calculator by clicking on the Tool icon in the Mix Size field.
2. ARM calculates the minimum amount of mix needed to cover the area of 1 treatment across all reps, based on the size of the experimental unit and the application amount.
3. Then enter an Overage value to account for filling the lines or to ensure proper coverage – it can be expressed as a percent or a set volume.
4. ARM adds the overage to the minimum mix, and sets this as the calculated mix size.

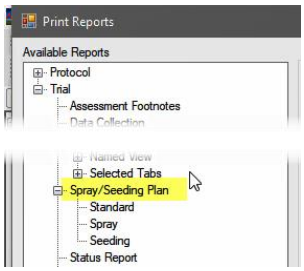


Once the applications are configured for the study, then specify which treatment components are applied at each of these applications, on the Treatments editor.

In our example, treatments 2 and 3 are applied with the same equipment – Application A. Then both components of Treatment 4 are applied together as a tank mix as Application B on the same date.



Also note the Formulation Type field, which is critical for performing treatment calculations. Unit conversions and product calculations depend upon whether the treatment formulation is a dry or a liquid, and whether it is applied undiluted, so it is important to specify the right Form Type to begin with.



All of this information is used to calculate the amount of each treatment product to measure when making an application. ARM performs this calculation on the Spray/Seeding Plan report. (Review the basics of the Print Reports process from the video 'Generating a Protocol Report'.)

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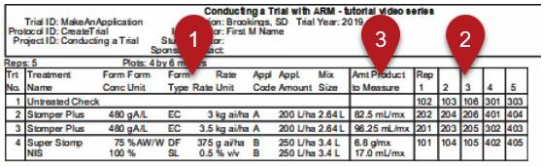
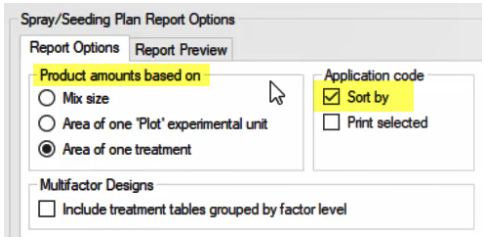
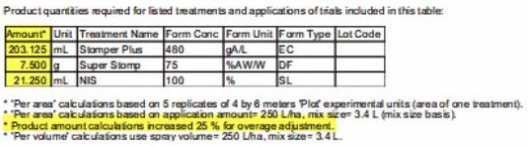


This report includes:

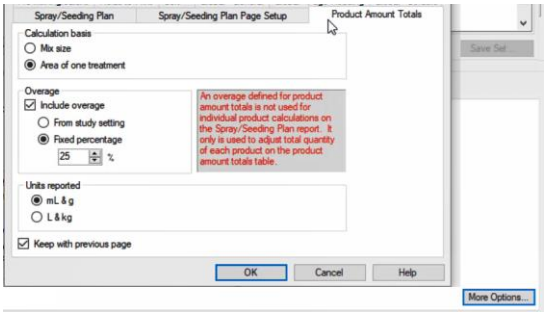
1. Specified treatment information
2. The experimental units to apply each treatment to, and
3. The calculated amount of product to measure for each treatment. In this case, it is calculated based on the entered mix size.



We can change to calculate amounts based on the area of an experimental unit or treatment. And we can also print a separate table for each application. Now only treatment line components linked to that application are included in that table.



At the end of this report is the Product Amount Totals section. This lists the total quantity of product needed across all applications and treatments in the study.



There can also be an overage added to these totals as well. This differs from the overage defined within the mix size, and is instead applied only to the amounts listed in this table to ensure the proper amount of product is ordered or received.

This overage can be a fixed percentage defined here, or use the overage that is entered on the Application tab of Settings in the study.