

Agriculture

Business Scenario

AgriFarm provides affordable chemicals and other crop-protection methods to farmers within the United States. To continue providing its customers with low-cost farming solutions, AgriFarm regularly engages in R&D activities.

While reviewing previous work, AgriFarm noted that liquid formulations of buster, an herbicide used to control grasses, broad-leaved weeds and clovers, were less effective than granulated forms. If liquid buster was sprayed onto the crops, it quickly became a layer of residue on the top of the plant making it unable to reach the soil. This made it unsuccessful in its duty as an herbicide. In contrast, dry granular formulations of buster fell off the plant and soaked into the soil.

This caused AgriFarm to launch a new R&D project, in which the hypothesis stated,

“To formulate, develop and test a unique spreadable herbicide, buster, that is effectively carried by an organic fertilizer.”

AgriFarm’s main business objective was to enhance the current use of liquid buster in various applications.

First and foremost, AgriFarm needed to determine the eligibility of its proposed R&D activities in order to know if it qualified for the Research and Experimentation Tax Credit. To be eligible, AgriFarm had to meet four criteria, known and developed by Congress as the Four-Part Test. After self-assessing, AgriFarm decided to register four R&D activities.

AgriFarm’s Eligible R&D Activities:

Formulation and development of a series of prototypes to achieve the technical objectives (formulation of the buster-carrying compound).

AgriFarm conducted experiments to prove that it was feasible to create a buster-carrying compound that maximized efficiency.

AgriFarm was successful in formulating four types of buster-carrying compounds, therefore meeting the R&D requirement of creating new knowledge or products.

Trials and analysis of data to achieve results that can be reproduced to a satisfactory standard and to test the hypothesis (testing of the buster-carrying compounds).

The hypothesis for this activity was that the formulations could undergo testing to determine the formula and criterion that produced an optimal end product.

AgriFarm performed testing on the effectiveness of buster-treated crystals and granules for the control of grasses, broad-leaved weeds and clovers (compared to liquid-applied buster formula), therefore meeting the R&D requirement of testing a new or improved product, device, process or service.

Background research to evaluate current knowledge gaps and determine feasibility (background research for the buster-carrying compound).

The background research for AgriFarm's project included literature search and review, consultation with industry professionals and potential customers, and preliminary equipment and resources review.

These research activities qualified as SR&ED because they assisted in determining the fundamental elements of the research project.

Ongoing analysis of customer or user feedback to improve the prototype formulation (feedback R&D of the buster-carrying compound).

AgriFarm conducted activities such as analysis and testing and ongoing development and modification of the compound. The feedback was imperative to evaluate the performance capabilities of the new formulation in the field and to improve any flaws in the formulation.

The results and outcome of AgriFarm's experimentation and testing were overall positive, and the findings were consistent with previous work in the industry. AgriFarm also proved the project hypothesis (that it could formulate, develop and test a unique spreadable herbicide [buster] that is effectively carried by an organic fertilizer). The new knowledge generated was used for further research and development work.

Commentary

Qualified Research Defined

Qualified research consists of research for the intent of developing new or improved business components. A business component is defined as any product, process, technique, invention, formula, or computer software that the taxpayer intends to hold for sale, lease, license, or actual use in the taxpayer's trade or business.

The Four-Part Test

Activities that are eligible for the R&D Credit are described in the "Four-Part Test" which must be met for the activity to qualify as R&D.

1. Permitted Purpose: The purpose of the activity or project must be to create new (or improve existing) functionality, performance, reliability, or quality of a business component.
2. Elimination of Uncertainty: The taxpayer must intend to discover information that would eliminate uncertainty concerning the development or improvement of the business component. Uncertainty exists if the information available to the taxpayer does not establish the capability of development or improvement, method of development or improvement, or the appropriateness of the business component's design.
3. Process of Experimentation: The taxpayer must undergo a systematic process designed to evaluate one or more alternatives to achieve a result where the capability or the method of achieving that result, or the appropriate design of that result, is uncertain at the beginning of the taxpayer's research activities.
4. Technological in Nature: The process of experimentation used to discover information must fundamentally rely on principles of hard science such as physical or biological sciences, chemistry, engineering, or computer science.

What records and specific documentation did AgriFarm keep?

Similar to any tax credit or deduction, AgriFarm had to save business records that outlined what it did in its R&D activities, including experimental activities and documents to prove that the work took place in a systematic manner. AgriFarm saved the following documentation:

- Project records/ lab notes
- Conceptual sketches
- Design drawings
- Photographs/ videos of various stages of build/ assembly/ testing
- Prototypes
- Testing protocols
- Results or records of analysis from testing/ trial runs
- Tax invoices
- Patent application number

By having these records on file, AgriFarm confirmed that it was 'compliance ready' - meaning if it was audited by the IRS, it could present documentation that illustrated the progression of its R&D activity, therefore proving its R&D eligibility.