Syngenta 2018 Acuron® Use Report:
A Condition of Registration of Acuron by EPA

Executive Summary

Acuron® (EPA Registration No. 100-1466) is a corn herbicide containing the active ingredients mesotrione, *S*-metolachlor, bicyclopyrone and atrazine. Acuron was granted conditional registration by the EPA on April 24, 2015. The Terms and Conditions of Registration for Acuron included a projected 3.6 million pounds net reduction of atrazine by the 2020 growing season, with an interim target of 1.6 million pounds in the 2018 growing season. The 2018 growing season marks the third full growing season since Acuron's introduction and the resulting reductions in atrazine are reported below. Overall, the registration and launch of Acuron has resulted in reduced rates of atrazine, improved weed control, improved weed resistance management and more effective one-pass application weed control programs. [redacted]

Conditions in the 2018 growing season were similar or worse to those experienced in 2017 with overall corn acreage in the United States remaining down and corn profitability being negatively impacted by depressed commodity prices. The control of many devastating weeds continues to be a difficult challenge due to increasing herbicide resistance. [redacted]

The reduction in atrazine rate through the continued use of Acuron in 2018 was supported by the continued successful implementation of the stewardship program. Acuron use continues to provide a high level of multi-targeted control of difficult weeds, including weeds resistant to other herbicides. Acuron also provides growers with the best opportunity for a one-pass weed control program, reducing the reliance on postemergence herbicides.

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Discussion of Market Conditions and Trends

Since [redacted], corn acres have been on a declining trend nationally, with a notable decrease in 2017. In 2018, total corn acres grown in the United States was 89,100,000 which was lower than the [redacted], the 2016 total of 93,365,001 acres and the 2017 total of 90,130,000. In 2018, the number of soybean acres exceeded the number of corn acres nationally for the first time in decades (89.6 million acres). This is a direct result of deteriorating corn commodity prices, which in 2018 continued to average below the breakeven cost of production price for many producers. Under these continued challenging and unforeseen market conditions, producers will continue seeking to save cost on all variable expenses including herbicides. [redacted]

The changing market conditions and weed resistance management have caused a shift in herbicide use patterns. Herbicide resistance continues to expand, with multiple resistant weeds (e.g., Palmer amaranth, waterhemp, giant ragweed, and marestail) across multiple sites of action, including glyphosate, HPPD, PPO and ALS herbicides. This expanded resistance is occurring more prominently in soybeans, which is increasing weed seeds in the soil seed bank and resulting in greater populations of resistant weeds to be controlled in subsequent rotational corn crops. [redacted]

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Adoption of Acuron and Resulting Atrazine Reduction

[redacted]

[redacted]

[redacted]

Table 1: 2018 Atrazine (ATZ) Use Data for [redacted][1]

Year	[redacted]	[redacted]	[redacted]
2018	[redacted]	[redacted]	[redacted]

[1] refer to Appendix A for summary of calculations generated in support of Acuron Use Reports 2016-2018

Table 2: Atrazine (ATZ) Use Data for [redacted][1]

Year	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
2018	[redacted]	[redacted]	[redacted]

[1] refer to Appendix A for summary of calculations generated in support of Acuron Use Reports 2016-2018

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[redacted]

Table 3: Acuron Atrazine Reductions Compared to [redacted][3]

Year	[redacted]	[redacted]	[redacted]
2018	[redacted]	[redacted]	[redacted]

[1] [redacted]

[2] [redacted].

[3] refer to Appendix A for summary of calculations generated in support of Acuron Use Reports 2016-2018

[redacted]

Table 4: 2018 Acuron Atrazine Reductions Compared to [redacted][1,2]

Year	[redacted]	[redacted]	[redacted]
2018	[redacted]	[redacted]	[redacted]

[1] Using data from Table 1: [redacted]

[2] refer to Appendix A for summary of calculations generated in support of Acuron Use Reports 2016-2018

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Stewardship

The Acuron stewardship plan is continuously implemented throughout the year by the Syngenta stewardship team and the commercial sales force and agronomic teams. The goals of the Acuron stewardship plan continue to include promoting sustainable agricultural production and weed management practices. One aspect is to raise awareness among Acuron users of the ability to minimize the application of additional herbicides (including atrazine) due to the high level of control of difficult weeds provided by the bicyclopyrone in Acuron. Additionally, Acuron users are being made aware of the resistance management advantages provided by multiple modes of action within Acuron, the importance of integrated pest management (IPM), soil management, and best management practices (BMPs) to reduce potential offsite movement of herbicides. Weed resistance to glyphosate and other active ingredients is one of the main concerns growers have when selecting an herbicide program. They understand that it is just as important to rotate herbicide modes of action as it is to rotate crops. Acuron provides three different modes of action and four different active ingredients and has proven to be an excellent tool in combating weed resistance problems. Additionally, with the inclusion of bicyclopyrone in the premix, Acuron is not as dependent on atrazine as other brands to control troublesome broadleaf weeds contributing to the reduced rate of atrazine used in Acuron.

The Acuron Stewardship brochure that was developed and implemented in 2017 continues to be used as a tool to reinforce the positive attributes of the product including:

- **Weed Resistance Management**: The ability to control difficult weeds with multiple modes of action.
- **Flexibility of Application**: Acuron can be used pre-emergence, post-emergence (up to 12 inch corn), or as a split application, which offers multiple ways to better manage atrazine use in sensitive watersheds.
- **Reduced Atrazine Rates with Acuron**: In many situations, there is no need to add extra atrazine to the herbicide program because of Acuron's excellent weed control due to multiple modes of action. However, the flexibility to use additional atrazine is needed for agronomic situations where soil conditions or weed resistance management warrant it.
- **5-Step Herbicide Stewardship**: Correct Use, Reason, Application, Rate, and Product.

[redacted]

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[redacted]

[redacted]

Conclusion

[redacted] In closing, the 2018 Interim milestone reduction of 1.6 million pounds of atrazine, as outlined in the Terms and Conditions of Registration for Acuron, has been met.

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APPENDIX A

Table 1A: Atrazine (ATZ) Use Data for Acuron [redacted]

Year	[redacted]	[redacted]	[redacted]
2016	[redacted]	[redacted]	[redacted]
2017	[redacted]	[redacted]	[redacted]
2018	[redacted]	[redacted]	[redacted]

Table 1B: Atrazine (ATZ) Use Data for [redacted]

Year	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
2016	[redacted]	[redacted]	[redacted]
2017	[redacted]	[redacted]	[redacted]
2018	[redacted]	[redacted]	[redacted]

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Table 2A: Acuron Atrazine Reductions Compared to [redacted]

Year	[redacted]	[redacted]
2016	[redacted]	[redacted]
2017	[redacted]	[redacted]
2018	[redacted]	[redacted]

[1] Using data from Tables 1A and 1B: [redacted]

Table 2B: Acuron Atrazine Reductions Compared to [redacted]

Year	[redacted]	[redacted]
2016	[redacted]	[redacted]
2017	[redacted]	[redacted]
2018	[redacted]	[redacted]

[1] [redacted]

[2] [redacted]

[3] [redacted].

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