

## Agricultural Research and Development Common Core State Standards for High School Mathematics Alignment

		Unit 1 Defining Agricultural Research and Development	Unit 2 Problems and Solutions	Unit 3 Methodology	Unit 4 Reporting Data	Unit 5 Communication
<b>CCSS: Conceptual Category – Number and Quantity</b>						
<b>The Real Number System</b>	<ul style="list-style-type: none"> <li>Extend the properties of exponents to rational exponents.</li> <li>Use properties of rational and irrational numbers.</li> </ul>					
<b>Quantities</b>	<ul style="list-style-type: none"> <li>*Reason quantitatively and use units to solve problems.</li> </ul>				X	
<b>The Complex Number System</b>	<ul style="list-style-type: none"> <li>Perform arithmetic operations with complex numbers.</li> <li>Represent complex numbers and their operations on the complex plane.</li> <li>Use complex numbers in polynomial identities and equations.</li> </ul>					
<b>Vector and Matrix Quantities</b>	<ul style="list-style-type: none"> <li>Represent and model with vector quantities.</li> <li>Perform operations on vectors.</li> <li>Perform operations on matrices and use matrices in applications.</li> </ul>					
<b>CCSS: Conceptual Category – Algebra</b>						
<b>Seeing Structure in Expressions</b>	<ul style="list-style-type: none"> <li>*Interpret the structure of expressions.</li> <li>*Write expressions in equivalent forms to solve problems.</li> </ul>					
<b>Arithmetic with Polynomials and Rational Expressions</b>	<ul style="list-style-type: none"> <li>Perform arithmetic operations on polynomials.</li> <li>Understand the relationship between zeros and factors of polynomials.</li> <li>Use polynomial identities to solve problems.</li> <li>Rewrite rational expressions.</li> </ul>					
<b>Creating Equations</b>	<ul style="list-style-type: none"> <li>*Create equations that describe numbers or relationships.</li> </ul>					
<b>Reasoning with Equations and Inequalities</b>	<ul style="list-style-type: none"> <li>Understand solving equations as a process of reasoning &amp; explain the reasoning.</li> <li>Solve equations and inequalities in one variable.</li> <li>Solve systems of equations.</li> </ul>					

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	<ul style="list-style-type: none"> <li>*Represent and solve equations and inequalities graphically.</li> </ul>										

**CCSS: Conceptual Category – Functions**

<b>Interpreting Functions</b>	<ul style="list-style-type: none"> <li>Understand the concept of a function and use function notation.</li> </ul>										
	<ul style="list-style-type: none"> <li>*Interpret functions that arise in applications in terms of the context.</li> </ul>										
	<ul style="list-style-type: none"> <li>*Analyze functions using different representations.</li> </ul>										
<b>Building Functions</b>	<ul style="list-style-type: none"> <li>*Build a function that models a relationship between two quantities.</li> </ul>										
	<ul style="list-style-type: none"> <li>Build new functions from existing functions.</li> </ul>										
<b>Linear, Quadratic, and Exponential Models</b>	<ul style="list-style-type: none"> <li>*Construct and compare linear, quadratic, and exponential models and solve problems.</li> </ul>										
	<ul style="list-style-type: none"> <li>*Interpret expressions for functions in terms of the situation they model.</li> </ul>										
<b>Trigonometric Functions</b>	<ul style="list-style-type: none"> <li>Extend the domain of trigonometric functions using the unit circle.</li> </ul>										
	<ul style="list-style-type: none"> <li>*Model periodic phenomena with trigonometric functions.</li> </ul>										
	<ul style="list-style-type: none"> <li>Prove and apply trigonometric identities.</li> </ul>										

**CCSS: Conceptual Category – Geometry**

<b>Congruence</b>	<ul style="list-style-type: none"> <li>Experiment with transformations in the plane.</li> </ul>										
	<ul style="list-style-type: none"> <li>Understand congruence in terms of rigid motions.</li> </ul>										
	<ul style="list-style-type: none"> <li>Prove geometric theorems.</li> </ul>										
	<ul style="list-style-type: none"> <li>Make geometric constructions.</li> </ul>										
<b>Similarity, Right Triangles, and Trigonometry</b>	<ul style="list-style-type: none"> <li>Understand similarity in terms of similarity transformations.</li> </ul>										
	<ul style="list-style-type: none"> <li>Prove theorems involving similarity.</li> </ul>										
	<ul style="list-style-type: none"> <li>*Define trigonometric ratios and solve problems involving right triangles.</li> </ul>										
	<ul style="list-style-type: none"> <li>Apply trigonometry to general triangles.</li> </ul>										
<b>Circles</b>	<ul style="list-style-type: none"> <li>Understand and apply theorems about circles.</li> </ul>										
	<ul style="list-style-type: none"> <li>Find arc lengths and areas of sectors of circles.</li> </ul>										
<b>Expressing Geometric Properties with Equations</b>	<ul style="list-style-type: none"> <li>Translate between the geometric description and the equation for a conic section.</li> </ul>										
	<ul style="list-style-type: none"> <li>*Use coordinates to prove simple geometric theorems algebraically.</li> </ul>										

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<b>Geometric Measurement and Dimension</b>	<ul style="list-style-type: none"> <li>*Explain volume formulas and use them to solve problems.</li> <li>Visualize relationships between two-dimensional and three-dimensional objects.</li> </ul>					
<b>Modeling with Geometry</b>	<ul style="list-style-type: none"> <li>*Apply geometric concepts in modeling situations.</li> </ul>					
<b>CCSS: Conceptual Category – Statistics and Probability</b>						
<b>Interpreting Categorical and Quantitative Data</b>	<ul style="list-style-type: none"> <li>*Summarize, represent, and interpret data on a single count or measurement variable.</li> <li>*Summarize, represent, and interpret data on two categorical and quantitative variables.</li> <li>*Interpret linear models.</li> </ul>				X	
<b>Making Inferences and Justifying Conclusions</b>	<ul style="list-style-type: none"> <li>*Understand and evaluate random processes underlying statistical experiments.</li> <li>*Make inferences and justify conclusions from sample surveys, experiments, and observational studies.</li> </ul>				X	
<b>Conditional Probability and the Rules of Probability</b>	<ul style="list-style-type: none"> <li>*Understand independence and conditional probability and use them to interpret data.</li> <li>*Use the rules of probability to compute probabilities of compound events in a uniform probability model.</li> </ul>					
<b>Using Probability to Make Decisions</b>	<ul style="list-style-type: none"> <li>*Calculate expected values and use them to solve problems.</li> <li>*Use probability to evaluate outcomes of decisions.</li> </ul>					