This project was evaluated using the point scale of 0-1-2-3. The project was evaluated based on the visible information in the project photograph; some more information may have been on the additional sheets.

Summary:

A. Title
Title: The effect of different wind speeds on the bending of corn stalk stems
Score: 3 – *The title correctly states the independent variable and the dependent variable and is NOT worded as a QUESTION.*
Comments: None

B. Question
Question: What is the effect of different wind speeds on the bending of corn plant stems?
Score: 3 – *The question states the independent variable and the dependent variable, and is testable.*
Comments: None

C. Hypothesis
Hypothesis: If corn is exposed to the highest wind speed, then it will be the most bent, because according to the background research, high winds can flatten the corn, and break the stems, (Nielsen). In severe cases, the breakage of the stem and flattening of corn, can lead to the "premature death" (early death) of the plant, (Hicks and Nicolai). However, low winds can be beneficial for the plant, (TNAU), while high winds can harm the corn by breaking and bending the stem (Nielsen).
Score: 3 – *The hypothesis (1) predicts the effect that changing the independent variable will have on the dependent variable AND (2) explains the reasoning for the prediction using scientific concepts ("because...")*
Comments: None

D. Background Research (found throughout the project especially within the hypothesis and discussion/conclusion sections)
Score: 2 – *Background Research is accurate, containing SOME relevant, well-chosen facts, definitions, concrete details, quotations, scientific concepts, or other information and examples that (1) provide information on the IV & DV AND (2) attempts to support the 'because' portion of the hypothesis OR (3) attempts to support the 'scientific reasoning' of the discussion/conclusion.*
Comments: While we can't see all of the research, from what is visible, it appears that the student has done a lot of research and found several reputable sources that provide information about the variables. The student's background research does support both the hypothesis and scientific reasoning. However, the student does not seem to have a wealth of scientific facts to which he/she refers.

E. Investigation Design (ID)
Score: 3 – *All 5 components of the investigation's design (or ID) are stated correctly and explicitly, AND only one independent variable (or IV) is allowed to change at a time, AND there are multiple trials.*
Comments: While the DV is correct, how it will be measured is not clear from its description in the ID. There also should have been at least 3 trials at each level.

F. Procedure
Score: 2 – *The Procedure accurately and completely satisfies two or three of the above.*
Comments: Much attention to detail was taken to ensure consistency across trials and levels (i.e. – distance from fans, measuring pre & post wind, etc.) However, there was still no mention of exactly how the DV was measured. How old were the plants at the time of the investigation, if they were grown from seed?

G. Data/Results
Score: 2 – *Most parts of the data graphs and tables are present, complete and accurate. Data analysis is attempted but may not be accurate.*
Comments: The student collected both quantitative and qualitative data, which gives a fuller picture of what happened to the plants during the investigation. Since there was no explanation of how the DV was measured, it's unclear what the numbers in the first data chart actually stand for. Are these the difference in the stalks' angles pre & post wind? The bar graph may have benefited from a smaller scale so that the measurements taken are clearer.

Ha. Discussion/Conclusion: Scientific Explanation
Score: 3 – *A scientific explanation consisting of a statement that (1) makes an overall claim addressing the original investigation question AND (2) supports the claim with evidence and relevant, accurate data from the investigation AND (3) contains relevant scientific concepts AND (4) uses words, phrases and clauses that clarify and connect the relationships between claim, evidence and science concepts AND (5) demonstrates an understanding of the topic.*
Comments: While the entire scientific explanation is not shown in the photograph, from what is seen, it appears that the student did make a claim that addresses the question, used the appropriate and sufficient evidence from the experiment, and was starting to connect the research to the findings.

Hb. Discussion/Conclusion: Reflection
Score: 3 – *Conclusion contains thoughtful, relevant, and reasonable reflections including (1) states whether the hypothesis was or was not supported AND (2) a description of possible sources of error AND (3) suggested solutions to these sources of error AND (4) "Next Steps" determined as a result of this investigation.*
Comments: It appears from what's visible that the student did cover all four parts of the reflection.

I. Literature Cited
Score: 3 – *A sufficient number of credible sources (1) are listed in the bibliography in an appropriate format that allows the reader to locate the resources AND (2) are cited in the text of the hypothesis, background research, conclusion, and other sections as appropriate AND (3) include books, articles, scholarly websites, or personal communication with knowledgeable experts/scientists.*
Comments: None

Project Section	Score (0-3)	Weight	Weighted Score
A. Title	3	x 1	= 3
B. Question	3	x 1	= 3
C. Hypothesis	3	x 2	= 6
D. Background Research	2	x 2	= 4
E. Investigation Design (ID)	3	x 2	= 6
F. Procedure	2	x 2	= 4
G. Data/Results	2	x 3	= 6
Ha. Discussion/Conclusion: Scientific Explanation	3	x 2	= 6
Hb. Discussion/Conclusion: Reflections	3	x 1	= 3
I. Literature Cited	3	x 2	= 6
		Total weighted score	=47 (54 max)
	Final Score (%) =	=Total weighted score/54 x 100	= 87%