

**The Genetic Basis of Phytate, Oligosaccharide Content, and Emergence in Soybean**

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in partial fulfillment of the requirements for the degree of

Doctor of Philosophy  
In  
Crop and Soil Environmental Sciences

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As a test of fair use in ETDs at Virginia Tech: Figure 1.1  
test of

Fair Use Factor	In Favor of Fair Use	In Favor of Copyright Holder (not fair use)
<b>Purpose and Character of Use</b>		
commercial or educational use for profit or not degree of transformation; value added for criticism, commentary, news reporting, teaching, scholarship, research	<input checked="" type="checkbox"/> Research	Commercial activity
	<input type="checkbox"/> Scholarship	Profit (monetarily) from use
	<input checked="" type="checkbox"/> Nonprofit university	Entertainment
	<input type="checkbox"/> Criticism	Bad-faith behavior
	<input checked="" type="checkbox"/> Comment	Denying credit to original author
	<input type="checkbox"/> Transformative: changes the original work for new purpose	
	<input type="checkbox"/> Parody	
<b>Nature of the Copyrighted Work</b>		
character of the work  for example, fact or fiction  worthy of (extensive) protection?	<input checked="" type="checkbox"/> Published work	Unpublished work
	<input checked="" type="checkbox"/> Factual or non-fiction based	Highly creative work (art, music, novels, films, plays)
	<input checked="" type="checkbox"/> Important to favored educational objectives	Fiction
<b>Amount and Substantiality</b>		
use only what's necessary quantity and quality in relation to the whole work	<input checked="" type="checkbox"/> Small quantity of the work	Large portion or whole work used
	<input checked="" type="checkbox"/> Portion used is not central or significant to entire work	Portion used is central to work or "heart of the work"
	<input checked="" type="checkbox"/> Amount is appropriate for favored educational purpose	
<b>Effect</b>		
harm to potential market or value of a work after a portion has been used separately from the whole	<input checked="" type="checkbox"/> User has lawfully acquired copy of the original work	Could replace sale of copyrighted work
	<input checked="" type="checkbox"/> One or fewer copies made	Significantly impairs market or potential market for copyright work or derivative
	<input checked="" type="checkbox"/> No significant effect on the market or potential market of copyrighted work	Reasonably available licensing mechanism for use of the copyrighted work
	<input checked="" type="checkbox"/> No similar product marketed by the copyright holder	Affordable permission available for using work
	<input checked="" type="checkbox"/> Lack of licensing mechanism	Numerous copies made
	<input type="checkbox"/>	You made it accessible on Web or in other public forum
	<input type="checkbox"/>	Repeated or long term use

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As a test of fair use in ETDs at Virginia Tech: Figure 1.2  
test of

Fair Use Factor	In Favor of Fair Use	In Favor of Copyright Holder (not fair use)
<b>Purpose and Character of Use</b>		
commercial or educational use for profit or not degree of transformation; value added for criticism, commentary, news reporting, teaching, scholarship, research	<input checked="" type="checkbox"/> Research	Commercial activity
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	<input type="checkbox"/> Criticism	Bad-faith behavior
	<input checked="" type="checkbox"/> Comment	Denying credit to original author
	<input type="checkbox"/> Transformative: changes the original work for new purpose	
	<input type="checkbox"/> Parody	
<b>Nature of the Copyrighted Work</b>		
character of the work  for example, fact or fiction  worthy of (extensive) protection?	<input checked="" type="checkbox"/> Published work	Unpublished work
	<input checked="" type="checkbox"/> Factual or non-fiction based	Highly creative work (art, music, novels, films, plays)
	<input checked="" type="checkbox"/> Important to favored educational objectives	Fiction
<b>Amount and Substantiality</b>		
use only what's necessary quantity and quality in relation to the whole work	<input checked="" type="checkbox"/> Small quantity of the work	Large portion or whole work used
	<input checked="" type="checkbox"/> Portion used is not central or significant to entire work	Portion used is central to work or "heart of the work"
	<input checked="" type="checkbox"/> Amount is appropriate for favored educational purpose	
<b>Effect</b>		
harm to potential market or value of a work after a portion has been used separately from the whole	<input checked="" type="checkbox"/> User has lawfully acquired copy of the original work	Could replace sale of copyrighted work
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	<input checked="" type="checkbox"/> No significant effect on the market or potential market of copyrighted work	Reasonably available licensing mechanism for use of the copyrighted work
	<input checked="" type="checkbox"/> No similar product marketed by the copyright holder	Affordable permission available for using work
	<input checked="" type="checkbox"/> Lack of licensing mechanism	Numerous copies made
	<input type="checkbox"/>	You made it accessible on Web or in other public forum
	<input type="checkbox"/>	Repeated or long term use



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As a test of fair use in ETDs at Virginia Tech: Figure 1.3  
test of

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<b>Purpose and Character of Use</b>		
commercial or educational use for profit or not degree of transformation; value added for criticism, commentary, news reporting, teaching, scholarship, research	<input checked="" type="checkbox"/> Research	Commercial activity
	<input type="checkbox"/> Scholarship	Profit (monetarily) from use
	<input checked="" type="checkbox"/> Nonprofit university	Entertainment
	<input type="checkbox"/> Criticism	Bad-faith behavior
	<input checked="" type="checkbox"/> Comment	Denying credit to original author
	<input type="checkbox"/> Transformative: changes the original work for new purpose	
	<input type="checkbox"/> Parody	
<b>Nature of the Copyrighted Work</b>		
character of the work  for example, fact or fiction  worthy of (extensive) protection?	<input checked="" type="checkbox"/> Published work	Unpublished work
	<input checked="" type="checkbox"/> Factual or non-fiction based	Highly creative work (art, music, novels, films, plays)
	<input checked="" type="checkbox"/> Important to favored educational objectives	Fiction
<b>Amount and Substantiality</b>		
use only what's necessary quantity and quality in relation to the whole work	<input checked="" type="checkbox"/> Small quantity of the work	Large portion or whole work used
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	<input checked="" type="checkbox"/> Amount is appropriate for favored educational purpose	
<b>Effect</b>		
harm to potential market or value of a work after a portion has been used separately from the whole	<input checked="" type="checkbox"/> User has lawfully acquired copy of the original work	Could replace sale of copyrighted work
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	<input checked="" type="checkbox"/> Lack of licensing mechanism	Numerous copies made
	<input type="checkbox"/>	You made it accessible on Web or in other public forum
	<input type="checkbox"/>	Repeated or long term use